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The Builder

AN

✣ ILLUSTRATED ✣ WEEKLY ✣ MAGAZINE ✣

FOR THE

ARCHITECT, ENGINEER, ARCHÆOLOGIST, CONSTRUCTOR, SANITARY REFORMER, AND ART-LOVER.

CONDUCTED BY

H. H. STATHAM,

FELLOW OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

"Every man's proper mansion-house, and home, being the theater of his hospitality, the seate of selfe-fruition, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kinde of private princedome, nay, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned."

"Architecture can want no commendation, where there are noble men, or noble mindes."—Sir Henry Wotton.

"Our English word To Build is the Anglo-Saxon Býlðan, to confirm, to establish, to make firm and sure and fast, to consolidate, to strengthen; and is applicable to all other things as well as to dwelling-places."—Diversions of Purley.

"Art shows us man as he can by no other means be made known. Art gives us 'nobler loves and nobler cares,'—furnishing objects by the contemplation of which we are taught and exalted,—and so are ultimately led to seek beauty in its highest form, which is Goodness."

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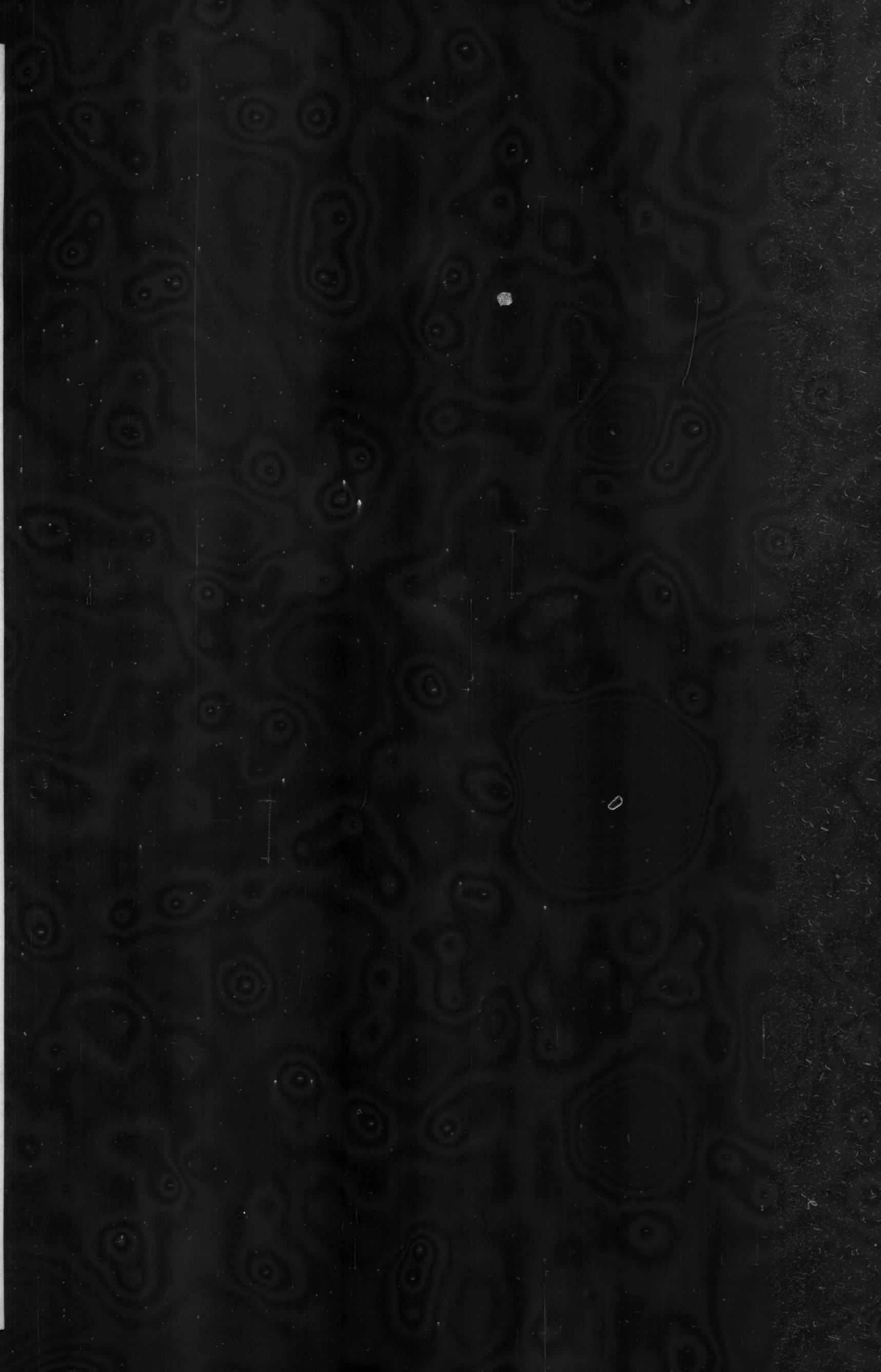

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The Pre-Historic Builders.

THE rumour, or indeed something more tangible than mere rumour, of the discovery in the Pas de Calais of skeletons of a race of ancient inhabitants not altogether unworthy the title of giants, has extreme interest for the student of the history of the builder's art. We speak with all due reserve. We have a wholesome memory of "Flint Jack," and of other disciples of the school of the immortal Dousterswivel. But there is a credulity of denial as well as a credulity of assertion, and the accounts given are at least of sufficient importance to merit investigation. Of course other verifications are requisite beyond that of the dimensions assigned to the bones. The osteological calculus, although the first problem to be solved, is only one of many. If science be content to accept the fact as the discovery of human, or quasi-human, bones of large size, the question of date becomes one of primary importance. Nor, knowing what we do personally of the effects of the dropping well at Knaresborough (close to the home of the famous Mother Shipton) and of the travertine-forming streams of the Adriatic sea-board of Italy, are we prepared to admit that a fossil condition necessarily implies a very remote antiquity.

All that, however, we may patiently expect to see thrashed out by the archæologist, the physiologist, and the palæontologist. The mode in which the effect of such a discovery (if it be one) may throw some light on the history of building is the subject which at the present moment most influences our consideration.

Our readers are aware that the mode of accounting for some of the most important megalithic remains in various parts of the world, and notably in our own island among others, ranges over an extraordinary difference of opinion. With one writer Stonehenge and Avebury are of post-Roman date. With another they are relics and monuments of a geological (and, therefore, in all probability a physiological) condition of things in England totally different from anything which now exists. We do not wish, at present, to express any decided opinion on the points in controversy. But we cannot omit to point out that if any proof be attained of the former prevalence, in this part of the world, of a lofty race of men or man-like beings, it would go far to support the views of those writers who first employed the term "cyclopean masonry."

A mathematical consideration of some interest here comes in. It may be said, "Is a difference,—if it be proved to have existed,—of 12 in. or so in stature worth making much fuss about?" We think that it is, and that for the following reasons. From the dimensions of public buildings in Italy, of Roman date, as well as from those of Syrian tombs, and other structures, not without very ancient literary confirmation, we think that the normal stature of many of the races inhabiting the shores of the Mediterranean may be taken at 64 in. in height. Such a standard, we should say, certainly will not now be much exceeded in Southern France, in Rome and most parts of Italy, in Greece, or in Palestine. Now in cases which occur in our own time of abnormal height there is too often present some countervailing weakness. The modern giant is frequently (not always) a deformity. The great height of Guy, Earl of Warwick, was due to the abnormal length of his back, perched on a pair of ordinary legs. The magnificent skeleton in the Museum of the Royal College of Surgeons, which is, if we remember rightly, that of a man of 8 ft. 3 in. high, is, we think, symmetrical; but such is rather an exception than a rule.

But if we come upon traces of a race of men of approximately the same height, however phenomenal that may appear to our present experience, it may, we think, be safely assumed that bulk, and thews, and goodly proportions would, as a rule, all be in harmony. If this be so, such a difference of height as is now under inquiry involves something of much more importance. For human figures, according to the canons of the art of the sculptor, a certain amount of variety of proportion is laid down. The Venus and the Hercules, although alike in certain proportions, are unlike in others. The old line, *Ex pede Herculem*, here comes true. In the most graceful nymph, or the most massive hero, of the great period of Greek art, the foot of the figure is alike taken as the unit of girth. But the length of the foot, which is normally exactly one-seventh part of the whole height of the figure, is somewhat increased for a powerful male type. We have found the difference to be as much as that between 137 (the seventh part of 960 parts = the total height) and 146, or about 6 per cent. But this, it must be remembered, is a square dimension, as it is applied horizontally in two senses. The proportion between the squares of 137 and of 146 is that between 18,769 and 21,316,—or, in other words, the figure denoting strength is, for equal heights, one-seventh more massive than the figure illustrating grace.

If this is the case in so apparently slight a modification of one type, and that the type of the most perfect symmetry, what will occur if we find a gain of height so decided as an advance from 64 in. to 84 in., that is to say, one of from 16 to 21? If we take the lighter Grecian proportion, that of the adoption of one-seventh of the height as the modulus of girth, we find an increase as the cube of the height. We are now concerned with increase as denoting muscular power. Without any such increase in girths as we have said that the Greeks gave to Hercules, taking only the difference due to the cube of the height, if the muscular power of the Roman is represented by 262, that of the cave-man amounted to 592, or 2¼ times as much. And if we allow a thickening of proportion at the same rate as in the Greek figures, we have the figure 677, or nearly 2·6 times as much as the first figure. In other words, if the stature of the race be raised from 5 ft. 4 in. to 7 ft., the strength of the individual would be not very far from being trebled.

How such an accession of strength would enable the strong man to rejoice in his toil, and to build up for his shelter, or for the memorials of his departed, piles of enormous blocks at which his more puny successors would only look with astonishment, we need not stop to point out. We must remember, however, that these Rephaim, or pre-Adamite giants (if they ever existed), are thought to have been the contemporaries of pachydermatous mammals and of

dracontian reptiles, of far greater size and strength than any now known to exist on our planet. Thus if three individuals could, by their united force, raise a stone that it would take nine strong men of our present race to lift, small wonder that they should have built with megalithic blocks.

There is, we apprehend, very little to be said against the theory that the discovery of cement led to the habitual use of stones smaller than those which had been previously employed. Such a change in the builder's art is every way probable. It may be said to have attained its limit in the substitution of concrete for stone, and in the substitution of artificial monolithic buildings for the conventional brick-and-mortar, in which the structural unit of the work is reduced to almost its lowest expression. All that may be, and we think is, true. But it in no way replies to the question, "Why, at a remote period of time, did builders habitually use such immense stones?" That they should have used large stones we can understand, but what determined the size? In a rude state of society, we must think that the personal strength of the builders had a great deal to do with it. Now the stones of the *cellæ* at Avebury must have weighed, before they were wasted by the atmosphere, at least twenty-seven tons each. Such a weight is little for a steam-crane to deal with. But its management was a puzzle to our builders of the early part of the present century. To move a stone 18 ft. square, it would be difficult directly to apply the force of more than forty men. This would put on each of them a strain of 13·3 cwt., something beyond any due allowance. But treble the strength of each man, and the difficulty disappears.

We are perhaps apt, when we see such quiet announcements as that a steam crane to lift 60 tons has been substituted for one lifting *only* 30 tons, to forget how enormous a step in advancement in our treatment of weights has been taken since, and mainly in consequence of, Mr. Robert Stephenson's experiments preliminary to the erection of the Menai Bridge. To take one instance alone, such a thing as a 100-ton gun could not have been made forty years ago; nor, if it could have been made, could it in any way have been used as a weapon of attack. And now we are beginning to consider vessels that do not carry 100-ton guns as not much more than second-rate men-of-war! We have, it is true, the records, on Egyptian and on Assyrian wall sculptures, of the movement of enormous masses of stone by an ingenious multiplication of levers, and by the combined efforts of a host of slaves. But the mere fact of such a method of the application of naked human force implies an advanced state of civilisation. Population must have become very dense to furnish the units of labour, and monarchical rule must have been very firmly established in order to allow that heterogeneous power to be combined and wielded by one will. And this state of things is reflected in the monumental character of the works thus accomplished.

There is, however, very little in common between the megalithic and monolithic work of Egypt and what have been called rude stone monuments. As to the latter, the range is as wide structurally as it is geographically, and we could specify parts of the East where,—though we cannot say with propriety that megalithic work is at the present moment being erected, we can say that memorial rites and monolithic (if small) monuments are still practised and erected, which are the survivals of the work of the dolmen builders of an undated antiquity. But it is the commencement of this kind of work into which the architect longs to peer,—not the traditional repetition or survival of it. And when we find that in work which (at all events in some cases) seems to have been not only of a sepulchral nature, but not intended for exposure to view, being covered with earth, it was natural to use large massive slabs of stone,—although in similar cases (as in the kist-vaens) small stones seem to have been quite as efficient,—it is not unreasonable to inquire, Why were the large blocks first used? How did they become the fashion,—so fashionable as to be the historic progenitors of a long series of rude buildings continuing down to our own time? Who were the first megalithic builders?

Let it be said that to such a question no reply can be given except by the imagination. Be it so. But what human faculty has played a greater part in the development of mankind than the imagination? To what else do we owe the most splendid discoveries of astronomy? True, the theory has been wrought out, by the inflexible rules of geometry and of arithmetic, into a splendid structure of absolute and unquestioned truth. But it was otherwise when Newton put to himself the question, Why did the apple fall? or when Kepler, swooping with the wing of an eagle on one of his primary laws, exclaimed in a half devout, half poetical rapture, "O God, I think thy thoughts after thee!"

Let it be said then, that it is only a poetic fancy that would connect the first introduction of the mode of building with ponderous blocks, of which mode, indeed, we can trace a long period of development, with a bygone state of things of which all the earliest sacred books, and all the most famous poems of the world, speak as undoubted. None the less may that fancy prove a fertile mother of truth. We are not, as we said before, about to say "So we believe it to have been." But we do say that there is quite enough before us to render the subject one of interest, and possibly of great value, to pursue; and that the discovery of the relics of a seven-foot race of men in Europe,—if such be verified,—is one that bears very directly on the support of the hypothesis of the giant builders of primeval times.

HOSPITAL CONSTRUCTION AND MANAGEMENT.

THERE is an old and salutary but often neglected proverb,—"Let us wait a little, that we may make an end the sooner," which those who are laudably anxious to produce important books upon important subjects would do well to act upon. In the preface signed by the joint authors of the work published under the above title,* it is observed that "there is no systematic work in the English language on the arrangement, management, and construction of hospitals, in their hygienic, administrative, and structural relations." This is, unfortunately, true; though there is, in fact, a considerable body of information on the various sides of the subject available by the "collation" of Miss Nightingale's book with the practical information on construction and sanitary appliances in various standard works on sanitation, together with special illustrations of planning and of means of warming and ventilation to be found in such works as that by Capt. Galton on "Healthy Dwellings," in which considerable space is devoted to the consideration of barrack and hospital sanitation, and in the very useful book brought out by Mr. Saxon Snell, one of the authors of the present publication, on "Charitable and Parochial Establishments," workhouses and infirmaries to wit; the sanitary problems in regard to which are in many respects very similar to those incident to hospital construction; so much so, in fact, that for the fuller illustration of several points Mr. Snell refers to or (better) quotes from his previous book. We may observe also that there is "in the English language," though not by English authors, a large and most valuable book, consisting of five "systematic" essays on the construction, organisation, and management of hospitals, written by five very competent American experts, in order to prepare the way for the production of a perfect hospital at Baltimore with the Johns Hopkins bequest. This book (which was noticed at length in the *Builder* for December 27, 1879) the authors do not seem to be acquainted with, as they make no reference to its existence, though they promise the publication of plans of the hospital itself. These, we suppose, will be got into Part II. of the publication, the plan of which, as far as at present appears, is not very comprehensible. On the cover we learn that this is "Part I.," and Part II. is to follow; in the synopsis of contents the book is divided into three sections, of which No. I. by Dr. Mouat, and III. by Mr. Snell, appear to be included in this volume, and Section III., by Dr. Mouat, is deferred.

In short, this book itself is not what can be rightly called a "systematic work," and one reason why it is not is supplied in the preface:—"It was originally intended to make the work a complete representation of the hospital systems of the civilised world, with typical and illustrative examples of the best-known and most recent models in existence of such institutions. It has been found, however, that to collect the materials for this purpose would necessitate very considerable delay,—a postponement of publication so considerable, in fact, as to be altogether inadvisable." The authors, therefore, determined to publish at once so much of the materials as they had been able to digest regarding the principles to be observed in the management and construction of such institutions, with descriptions and illustrations of the most advanced types to be found in Europe generally. The result of this is that the book contains too little for the one assumed purpose, too much for the other. The object of showing what are the true principles of hospital construction, and by what practical means these may be best realised, is one thing; that of giving a comprehensive view of the actual methods that have been employed is another thing. For the latter purpose the examples given are inadequate in number; they only include, relatively, a small proportion of the larger hospitals of Europe. Whether the practical value of a much more extended illustration of actual hospital construction would be at all in proportion to the time and trouble that would be required to collect the materials for it, is another question. We do not believe it would be. Such a collection of examples would serve to show how much has been done that is wrong and absurd; the statistics might be of interest as showing the actual state of knowledge and practice at the present moment, but would certainly include a great deal that would merely show what to avoid. And even as it is, this is the case to a considerable extent. If the object of this publication is to show, in the positive and not in the negative sense, what are the main objects to be kept in view in the planning and construction of hospitals, the description and illustration of some hospitals, both English and foreign, which are full of faults, is little better than wasted space. If the book be intended, not as an exhaustive illustration of hospital architecture, but as a treatise on the best methods, a few illustrations of different types of plan, each of which has something to recommend it, with a critical estimate of the merits and defects of each, would have been more to the purpose, and could have been comprised in a smaller compass. As it is, a good deal of useful information may be gleaned from both sections of the book, which has to be picked out from amid a good deal which is of no use, except as giving partial and incomplete information in regard to the present actual state of hospital building.

The medical author of the book, or of the first portion of the book, suggests as the best, or at least simplest (and that means the best) classification of existing hospitals, their consideration under the heads of "Clinical," "General," "Special" "Cottage," and "Convalescent" Hospitals; the classification was quoted more in detail in Mr. Robins's paper on hospitals at the Parkes Museum, reported in our last number, where it will be found printed (p. 875). This is, of course, an adequate general classification; and following upon that we should have naturally expected a succinct statement of the special objects which should be prominently borne in mind in the construction and working arrangement of each of these classes of hospitals. Instead of that, the medical author goes off, through about thirty large pages, into rambling sections on ventilation and warming, and descriptions of various existing hospitals, illustrated by small and inadequate block-plans and bird's-eye views, all which should have had place in the second or architect's portion of the book, in which case they would probably have been better and more intelligibly described; and then we come upon a repetition of the classification with an alteration which had occurred to the writer since the first one was made; and then at last we have the special recommendations in regard to special classes. But this is not the way to make a useful and practical text-book of the subject: the waste of space and waste of words, in a kind of book where everything should be as plainly and briefly stated as is consistent with perfect clearness, shows that whatever the knowledge and experience of the writer, he wants the power of putting it into logical shape. The want of any relation between the work of the two authors is obvious: the

* Hospital Construction and Management. By Frederic J. Mouat, M.D., F.R.C.S., &c., and H. Saxon Snell, F.R.I.B.A., &c. London: J. & A. Churchill & Co. 1883.

two parts of the book might have been independent treatises published separately. Dr. Mouat, for instance, speaks in several cases with great dissatisfaction of St. Thomas's Hospital, as a costly mistake, and so on, but without specifying what are his particular charges against it. When we come to the second part of the book, and find a lengthy description of St. Thomas's, with plans, sections, and perspective view, we expect to find detailed reasons for the criticisms thrown out in the first part of the book: but nothing of the kind. The architectural author mentions, as matters of fact, one or two things that were not done, but without expressing any particular condemnation of the omissions, and alludes to it in his peroration as "this magnificent building"; and there is nothing whatever to indicate that in the other part of the treatise this hospital had been generally but emphatically condemned. Mr. Snell, as far as his portion of the book is concerned, is more business-like and concentrated in his way of writing than his medical co-adjutor; but there seems little more relation between the two than if an enterprising publisher had thrown two separate books into one cover in order to "exploit" them as one work.

Looking to the classification adopted by Dr. Mouat, the special provision which he considers to be required in clinical schools, as distinguished from general hospitals, is that they should have greater space in the wards for clinical teaching, more complete classification of disease, and the careful selection of typical cases; though the author is careful to add the proviso that "the primary intention of hospitals should never be sacrificed in them to the schools to which they belong,"—the patients, in other words, should never be allowed to feel that they are mere objects of study, and that their recovery is a secondary consideration. There are, we suspect, a certain proportion of hospital patients who always will have that idea, simply because a considerable number of persons, among the uneducated classes especially, labour under an inability to understand the medical character, and fancy the cool and business-like manner of an experienced surgeon means callousness and indifference. General hospitals come under the same conditions as to requirements, *minus* the extra space for teaching and the extra provision for classification and for study. Among the special classes one of the most important is that of the Lying-in hospitals, and here Dr. Mouat makes a strong stand, in which we should be disposed to be entirely with him, and in favour of which he brings very conclusive statistics, as against general lying-in hospitals and in favour of small hospitals with separate rooms. Parturition, we are assured, is in relation to hospital conditions to be classed with "traumatic injuries,"—in other words, with wounds resulting from violence, and leads to some very similar results in the generation of "septicæmic poisons, dangerous to the individual and to others, from their eminently contagious character and liability to extend from epidemic causes or unsanitary conditions." Attention appears to have been first drawn to this by the report, made in 1867, of a Committee appointed to consider "the cubic spaces of metropolitan workhouses," from which it appeared that puerperal fever and mortality were less frequent in the lying-in wards of workhouses, where the space was much greater in proportion to the number of patients, than in any other lying-in institutions. But the most remarkable statistics are those resulting from an inquiry made in Paris in 1873–5, by M. Lefort, on the results of four different methods of affording care to the pregnant poor, all practised side by side in Paris, viz.:—

1. The obstetric wards of general hospitals.
2. The special lying-in hospitals.
3. Home delivery of the indigent by official midwives.
4. Confinements at the licensed houses of midwives.

The statistics are startling; we take them in reverse order:—

4.	Proportion of deaths,		1 in 200.
3.	,,	,,	1 in 528.
2.	,,	,,	1 in 32.
1.	,,	,,	1 in 24!

The lesson is, to some extent, of wider application than to this class of hospital merely. It seems to indicate that in all ailments which are accompanied by, or result from, external bodily injury, the difficulty of recovery rises formidably in proportion to the number of cases placed together. In regard to this special class of cases the statistics, if unimpeachable, ought to make it morally indefensible to build lying-in hospitals with public wards any more. We expressed a strong opinion not very long since, in reviewing some competition plans for a hospital, against the public lying-in ward, but our words would have been much stronger had we then been acquainted with such medical statistics as we have quoted above.

The point mainly emphasised in regard to special hospitals, fever and small-pox hospitals particularly, is the desirability of more thorough isolation than is possible in most hospitals even on the orthodox pavilion pattern. For all sudden outbreaks and epidemics, for which special provision must be made, Dr. Mouat recommends temporary structures, wooden pavilions, or (if the season permits it) tents, as still better. Abstractedly, he is no doubt right; but circumstances sometimes render this next to impossible at the moment, and in any case a local legislation armed with despotic power is necessary to carry out the scheme before it be too late. We ought to take a lesson in these matters from the great German Commander, who is said to keep a drawer full of prepared telegrams to be sent wherever necessary to military subordinates, prepared at once to carry them out. As Count Moltke's "War——mobilise," told everything necessary for the moment to his military subordinates, so we ought to have a settled medical scheme and a legislative machinery in readiness against epidemic, so that a municipal authority need only telegraph to his medical officers "cholera——mobilise," or whatever may be the peculiar enemy threatening the camp. There are unfortunately so many persons, in a free country, who will assert (what is practically) freedom to make themselves and other persons ill, and shriek their complaints through the columns of too-ready journals open to the expression of all kinds of imaginary grievances, that the enforcement of the course which would best fight an epidemic is beset by many quite unnecessary difficulties. In regard to the advantages of isolation, though these hardly need proving now, we may advert to one instance mentioned by Dr. Mouat, in connexion with the City Hospital of Boston last year, "when an unmanageable outbreak of diphtheria was ultimately overcome by treatment in tents in the garden of the hospital." The permanent provision of small pavilions in connexion with all hospitals, for the treatment and isolation of infectious diseases, is, of course, a natural corollary from these and other observed facts; and to such arrangement the Tollet system especially lends itself; but on this a word just now. In relation to the subject of special hospitals we may observe that there is mention made of a proposal by Dr. Burdon Sanderson for the erection of circular sick wards for small-pox patients. "These wards would have a central chamber 20 ft. diameter, inside which an inspirator would be placed for the purpose of removing the foul air from the adjoining ward. It is proposed that this air should be made to pass through a furnace, or otherwise be subjected to a sufficiently high temperature to ensure the destruction of all organic matter contained in it. The beds would be placed with their heads against the inner chamber, and would be divided from each other by partitions; thus the patients would face the windows in the outside walls, placed at a distance of 18 ft. from them." The efficacy of this ingenious suggestion has not yet been tested. The suggestion, we may observe, ought to have found place under the heading treating of special hospitals, but in this "systematic" book (which as yet has no sort of index) it is thrown in at the end of a description of the Antwerp Civil Hospital, where no one would think of looking for it, and is then dismissed with a "more of this hereafter"; but, in the absence of an index, our search did not enable us to find any further reference to the subject.

Cottage Hospitals include merely the application of the same sanitary principles which regulate the construction of larger hospitals, on a smaller scale and under (generally) more favourable conditions of site; and Convalescent Hospitals may, on the whole, be regarded simply as "healthy dwellings." Having glanced at Dr. Mouat's classification, let us for a moment make another rather more general classification in relation to principles of planning. We might group these under four heads: large blocks of building on the old type; pavilions of several stories with corridor communication; pavilions of two or more stories entirely separate; and one-story pavilions entirely separate. The first class need not at this time of day have been noticed at all, but for the appearance of an apparent partial, and we must say very foolish, reaction in their favour on the part of a few, but we have reason to believe a very few, of the medical profession. This demonstration will be found in the report of the discussion on Mr. Robins's paper, printed on another page; from which it appears that two members of the medical profession wish to have hospitals built in quadrangles, open at the angles, in preference to the pavilion system. How carelessly the speakers entered on the subject is shown from the fact that one of them referred to the Friedrichshain Hospital as a one-story pavilion hospital, which it is not; only the surgical wards are one-storied. We have reason to believe that the opinions expressed by Dr. Poore and Dr. Steele do not represent those of the majority of the medical profession, and do not require serious refutation, although there is no doubt that they include considerations which require to be duly taken into account.

When we come to consider the other three principles, we feel, no doubt, that actual statistics, as well as the most logical theory, are on the side of such a system of one-story pavilions as that with which the name of M. Tollet is now chiefly connected. But then we must not forget other practical considerations which modify the possibility of always carrying out such a system in its entirety. As one of the first surgeons of the day observed to us, "Of course, the ideal hospital would be a hut in the middle of Salisbury Plain, but then we cannot command a Salisbury Plain wherever we want it." Hospitals for surgical cases are in one sense best in the most isolated form, and in the most open position; but it is in large towns, and amid all the chances of injury incident to crowded manufactories, streets, and docks, that the greatest number of cases requiring surgical treatment arise, and it is impossible that we could adopt a system of relegating all hospitals for such cases to open country, in the outskirts of the town. The hospital for the treatment of sudden and violent injuries must be comparatively near at hand, or the dangers arising from long transit before medical aid could be obtained would certainly, in the long run, counterbalance the sanitary advantages of an open situation; and the great space required to accommodate the same numbers in detached one-story pavilions can hardly be expected to be spared in the centres of labour and business of a large city. Certainly, in London at present such spaces are not, and are not to be had, without turning a considerable portion of our park areas into hospital ground, an alternative which for many reasons is not to be thought of. Could we begin *de novo*, and lay out London again, we should, no doubt, in our present state of knowledge of the subject, see the advisability of retaining a much larger area for hospital sites than is occupied by any of our present metropolitan hospitals; but even then it is a question whether it would be the best arrangement for the general good of the community to lay aside, for the purpose of curing disease and injuries, a proportion of space which must be robbed from the living space of the uninjured portion of the community. For town hospitals, therefore, we believe the real answer to the problem is in a middle course, in the adoption of the pavilion system with two or more stories in height for medical cases (better if they can be kept to two stories), and one-story pavilions for surgical cases, more completely isolated. The best examples of this system of treatment which are illustrated in the present volume are the Berlin Civil Hospital and the Heidelberg Hospital; best in general arrangement, that is, for in matters of detail even the best of German hospitals exhibit arrangements which are fearful and wonderful in our eyes, and which no English sanitary authority would tolerate. In the Berlin Hospital, for example, the lavatory and latrine rooms open right on to the ends of the wards, and close to an artificial ventilation extractor; "no structural precaution is taken to prevent the foul air from the water-closets and urinals being blown directly into the wards when the windows are opened; on the contrary, open gratings are inserted in the lower panels of the door communicating with the ward, for it is contended that the action of the ventilating appliances is such

that the air is constantly being drawn out of the ward, and through the compartment containing the urinals into the ventilation extraction-shaft." The plan shows at once that this action is very problematical, and it is a curious instance of the risks in regard to this class of danger which will be permitted even in otherwise well and carefully planned hospitals in Germany. This is nothing to some of the features in other German plans that are given, which are simply astounding. We have long ago said, and we observe that some at least among the best English independent sanitarians are with us, that water-closet apartments in particular should always where possible be warmer than the adjacent portions of a residence of any kind, both on account of the necessary exposure in them and in order to insure a current drawing into them from the rest of the building, and not, as is too often the case, the reverse way: and how much more necessary is this in the case of hospitals, on every ground?

In cases where large many-storied hospitals are built, if any will be still built, on the pavilion principle, it must be observed that it is highly improper and quite subversive of the benefits of the system, to join two tall blocks of buildings, say a ward block and an administrative block, at right angles to each other, even with an intercepting passage with a cross draught. There are a good many instances of this among the plans of existing hospitals given in the volume. Wherever there is a re-entering angle there is, in hot and calm weather, in all probability, a stratum of stagnant air. It is not likely, however, that this mistake will be permitted in future hospitals.

The description and plans of the Antwerp Civil Hospital give detailed information of the only practical experience on a large scale which has yet been made with circular wards, as suggested by the late Professor Marshall. This building is hardly yet completed, and therefore we have no authentic experience of its results as yet; but the plan and description lead us to expect dissatisfaction from it.* The saving of floor-space is less than was promised, because the radiation of the beds towards the centre brought them too close together at the feet for the convenient operation of doctors, nurses, and other attendants, and the number of beds which might have been placed against the same length of straight wall had to be reduced, on the circular plan, by one-sixth. The placing of the beds so that each patient can have the best view of the whole of his fellow-sufferers appears to us highly objectionable, and an aggravation of one of the unavoidable miseries of public wards. The ventilation appears to be admitted in the centre, near the ceiling (from a central shaft), and drawn out from various openings in the wall near the beds, communicating with an extracting-shaft,—the very reverse of the system which ought to be adopted. Fresh air (warmed when necessary) should be introduced near the patients, and then drawn away and extracted at the upper part of the room, instead of being introduced at a distance and allowed the chance of mingling with partly-contaminated air on its way. In the centre of the circle is an octagonal nurses' room, divided by a partition not reaching to the ceiling. After the building has been in use for some years there would be a melancholy interest in obtaining statistics of the rate of disease and mortality of the nurses thus spending the best part of their time in the centre of a ward surrounded by patients. The idea of a circular ward, suggested by Dr. Burdon Sanderson, as before observed, in which the arrangement is reversed and the bed-heads are in the centre and the patients face the outer wall, would be free from some of the objections to the circular ward, provided the interior space could be properly utilised. But the circular system, as arranged at Antwerp, we expect to hear condemned on full experience of its operation.

Where space can be spared for it we have no hesitation in adopting the view that what may now be called the Tollet class of hospital in its completeness is for this climate the best that can be had.† We say for this climate, because a decidedly colder climate than ours might be unsuitable for it. But while we endorse Dr. Mouat's opinion on this head, we regret that his remarks are accompanied by no adequate representation of the system in question. This is another of the curious inconsistencies of this publication, that one hospital, as we have observed, is uniformly condemned in Section I., but receives ample illustration and implied admiration in Section II.; while another, the Tollet form, is uniformly extolled, but receives no illustration beyond a small and perfectly inadequate bird's-eye view, neither plans, sections, nor elevations being given; and the description is in this instance furnished entirely by the medical contributor, in a manner not very intelligible except to those already acquainted with it. For instance, Dr. Mouat writes, "The wards are built on the plan of the Gothic arch, to avoid all stagnation of air, or arrest of organic or other matters floating on it, by angles or corners of any kind." What Dr. Mouat, we presume, really meant to say is that the wards have a pointed-arch *section*, in order to avoid any angle at the cornice, and leave the air free to arise unimpeded to the only angle, the ridge of the pointed arch roof, where the extraction takes place. This at least would be the course of the natural ventilation in summer, but not a word is said about the details of this; and the form of hospital which is most praised in the book is the worst described and illustrated of all.

There is no doubt a great deal of information of various kinds, in connexion with the subject, to be extracted from this book, but it is put together in a somewhat confusing manner. In spite of defects, however, the appearance of any serious work on the subject is somewhat opportune just now, when there seems such a growing distrust of the merits of some of our great hospitals that their subscriptions are perilously falling off. The method of dealing with those buildings which are on plans now universally condemned, Dr. Mouat suggests, is not by attempting to bring "these antique institutions" up to modern standards by any system of patching, but to diminish the number of beds by one half, utilise the additional space thus obtained so as to neutralise their most obvious defects, and then build small hospitals elsewhere, on modern principles: and this appears to us to be the best suggestion. It appears obvious that in some cases public confidence in the efficacy of the hospital will have to be restored in this or some other manner; and considering that all except Guy's, St. Bartholomew's, and St. Thomas's are supported by voluntary contributions, public opinion becomes a very important factor in the matter, and any publication which influences public opinion will be likely to have practical results at no distant date.

* The plan is published in this number, as it happens, as an illustration to Mr. Robins's paper printed in our last.

† An able medical critic in the *Saturday Review* fears that architects would regard this class of hospital with despair, as incapable of anything but ugliness. We do not egard it so. It could not be made an imposing building, but it might be made very picturesque and pleasing.

New Hospital at Eastbourne.—Their Royal Highnesses the Prince and Princess of Wales, accompanied by the Princess Elizabeth of Hesse (second daughter of the late Princess Alice), visited Eastbourne on Saturday last for the purpose of opening the Princess Alice Memorial Hospital. Their Royal Highnesses were received on alighting by the chairman, the Rev. Canon H. R. Whelpton; the treasurer, Mr. George Gurney; and the hon. secretary, Mr. J. H. Campion Coles, who conducted them through the pavilion to the entrance of the hospital, where they were received by the architect, Mr. Thos. W. Cutler, and Dr. Gream, physician to the Princess of Wales. The Prince of Wales opened the entrance door with a ceremonial key, which was designed by the architect and manufactured by Messrs. Chubb & Son; the key was of chiselled and polished steel inlaid with gold. The handle was in the form of a Tudor rose with the letter A for Alice, inlaid in gold, in centre, the whole surmounted by a princess's coronet; up the stem was entwined a gold snake, the symbol of Æsculapius, the god of the healing art. An inspection of the administrative building and wards was then made under the guidance of the architect. We gave a view and plans of the building in the number of the *Builder* for Oct. 21 last., and may give further particulars of the building on a future occasion.

Engineering Exhibition at Islington.—The second Engineering and Metal Trades' Exhibition was opened in the Agricultural Hall, Islington, on Thursday last, under the management of Mr. Samson Barnett, jun. We will take a look at it, and say something of it next week.

THE REMUNERATION OF ARCHITECTS IN AUSTRIA AND GERMANY.

THE remuneration of professional men, like that of all classes of workers in modern civilised states, of necessity from time to time requires revision and readjustment. The simple fact that the purchasing power of gold and silver has undergone very considerable changes since the invention of railways and steam vessels, and the discovery of the rich mines of the precious metals in America and Australia, has of itself necessitated a revision, and in almost all cases an immense increase in the wages of skilled and manual labour, as well as in the salaries and honoraria of the professional classes. To this law of political economy, the remuneration of architects and the allied professions forms no exception, and there have, in fact, within a comparatively few years past, been very considerable changes carried out in the rates and methods of pay of the profession in every country of Europe. In illustration of these general remarks, we will refer to the case of Austria and Germany. The method of calculating the honoraria of architects now in vogue in those empires was only settled in 1868. In that year there was a great Congress of German Architects and Engineers, held at Hamburg. The principal topic of discussion at the various sittings was the arbitrary and unsatisfactory pay which the profession everywhere received throughout the various German States. There was no regular fixed scale of remuneration, and as there were no other means of putting an end to the uncertainity, the capriciousness and inadequacy that had hitherto characterised the pay for the services of architects and engineers, the Hamburg Congress worked out a complete scheme or scale, and recommended it for adoption throughout the country. The proposal met with immediate approval by the profession, and after a long and hard struggle was recognised by the Courts of Law in Germany. Moreover, the next year it was likewise taken up by the architects and engineers of Austria, and was, as rapidly as could be expected, adopted throughout that empire. For the last fourteen years, in fact, the Hamburg scale has been generally acknowledged in Austria and Germany. It has served its purpose well throughout that period, but the time has now come when it has at length been found in many points unsatisfactory and unadapted to the altered circumstances of the day. An agitation has for some time past been going forward for a revision of the scheme, and this time the initiative is being taken not by Germany, but by Austria.

Some time back the Austrian Engineers and Architects' Association appointed a committee to draw up a revised set of rules on the scale of remuneration for professional services. The result of their labours was submitted to the Association at one of its recent sittings, and the new text was adopted, and has now been published in its proceedings. The title of the revised scheme is "Rules for Calculating the Honorarium for Buildings and for Architects' Services." Paragraph 1 of the new rules runs as follows:—"The Austrian Engineers and Architects' Association considers it desirable that between architects and those entrusting them with commissions there should be, with regard to the proposed work, a contract entered into in which the nature of the work is described, the amount of the honorarium is stated, and the date assigned when the latter falls due, whether before and during the execution of the commission or after the work is finished, and likewise prescribing that any eventual disputes shall be settled by the Court of Arbitration of the Austrian Engineers and Architects' Association." By the adoption of this last recommendation the settlement of disputes becomes very inexpensive, as the employer of an architect binds himself thereby not to appeal to the ordinary courts of justice. The judgment of the Board of Arbitration acquires legal force, and the wearisome delays and ghastly expense of the law are avoided. Whether the employers of architects will always be willing to deprive themselves of an appeal to the ordinary courts of justice in case of disputes, is another question. They may possibly be reluctant to tie themselves down to a professional body, which many will be apt to think cannot fail to be prejudiced in favour of the architect. It is, however, pretty certain that the employer of an architect

would, in the long run, lose less even if the result of an arbitration is adverse to him than if he appealed to the legal tribunals. The next three paragraphs run as follows:—(2) "As the basis of the contract the Association recommends the appended rules and scale for calculating the honorarium for buildings and architectonic services. These rules and scale are obligatory upon the members of the Association, when on the proposal of the Association they perform professional services for third persons. (3) Every member of the Association is at liberty to settle with the employer the conditions of the contract according to his own judgment, and to fix the remuneration for his services without regard to the honorarium tariff. To increase subsequently the remuneration thus determined is, however, admissible only in case of additional work, that was not foreseen, being done; on the other hand, the honorarium may be reduced when less than the stipulated work is done. Where no previous agreement is made between the parties, professional services will be reckoned according to the scale laid down in the honorarium tariff. The members of the Association are bound in the interest, and for the honour of the profession to claim as their remuneration the full terms agreed upon in the contract. (4) The rates laid down in the honorarium tariff include full remuneration, not only for the physical labour, but also for the mental work of the architect. For every other use of the same project beyond that stipulated in the original contract, or for its repeated application, the parties must enter into new agreements. But under all circumstances the rights of the architect as the originator of a project are reserved to him, and the members of the Association are entitled to that protection which, under the regulations of the society, they owe to one another." The next six paragraphs of the rules remain practically unchanged. All buildings are divided into five distinct classes, and tables are given showing the percentages which architects are entitled to claim, according to the different scales of outlay. Rules are laid down for determining intermediate percentages not specially provided for in the tables.

The Eleventh Paragraph, which is entitled "Honorarium for services which cannot be calculated according to estimated cost," provides that for certain sorts of work performed in or out of doors, such as preparing opinions, estimates, inspecting buildings, and making drawings of buildings, &c., the pay is to be reckoned by the day. Honoraria calculated according to time must always be by days, especially in all those cases where there are no tariff quotations in the table to settle the honorarium in the given case. The time applied in services includes that taken up by the necessary preliminaries, and likewise that employed in travelling to and from between the place of residence and where the business is performed. For the chief architect the honorarium, when he works in his place of residence, amounts per day at least to twenty-five florins, but outside the town where he resides, the minimum per day amounts to fifty florins (4*l.* 3s. 4d.). For an assistant the respective amounts are half the above. The expenditure for other help must be reckoned separately. Consultations are to be calculated upon the following scale:—(*a*) questions and simple replies, five florins; (*b*) consultations in the office, from five to twenty-five florins; (*c*) consultations not in the office, but in the town, from ten to forty florins; (*d*) inspection or estimate of buildings, from twenty-five florins upwards. If an architect performs a piece of work outside the town where he resides, he is authorised in claiming his travelling expenses, in addition to his honorarium, according to the tariff. The chief architect, when he has to take a carriage, claims for a two-horse vehicle, and first-class in travelling by railway or steamship. Assistants claim for a one-horse vehicle and second-class by rail and first-class by steamer. Moreover, both may claim the fees paid for carriage of luggage, measuring apparatus, instruments, &c. Expenses for additional assistants are to be reckoned separately.

Paragraph Twelve lays it down that, for business in which the architect has to work after seven o'clock in the evening, his fee is doubled.

The thirteenth paragraph states that where work has been commenced and is stopped, or remains unfinished without the fault of the architect, he can claim both compensation for preliminary outlay, and honorarium proportional to the quantity of work done, provided it be not less than one-fourth of the total amount agreed upon for the entire work. When the architect is not entrusted with conducting the building operations, and when by desire of the employer, he furnishes several sketches, the employer has to allow pay for them in the following manner. The first sketch is to be paid for according to the tariff scale. The second sketch one-third, and the third and following sketches at one-fifth of the scale. The fourteenth paragraph refers to instalments. The architect, if he desires, must be paid by instalments, proportional to the progress of the work. In case no special agreement has been made in reference to paying the fee by instalments, the payment must be made in four instalments as follows:—1. Three-tenths on giving instructions to proceed to building; 2. Three-tenths upon finishing the principal construction; 3. Two-tenths on receipt of permission to use the building; 4. Two-tenths on the passing of the revised accounts.

Such are some of the principal features in the new Austrian rules in respect to the remuneration of architects. They are exciting much attention in Germany, where a similar revision is shortly expected.

The question of the honoraria to be allowed to architects for the restoration of monumental buildings has also been engaging the attention of the profession in Germany, where the difficulty has long been felt as to the proper method or principle of calculating the remuneration for this kind of work. It is impossible or unsatisfactory in many cases to reckon by a percentage of the total sum expended, nor by a lump sum fixed at the outset, as restorations of monumental structures are liable to such frequent and unforeseen revisions and extensions. The regular rate on which the remuneration of architects is calculated in the case of new buildings will also rarely apply in a satisfactory manner to restorations. Herr Redtenbacher has accordingly submitted the following suggestions to the consideration of the architectural profession in Germany. He proposes to allow a fixed sum of 100 marks (5*l.*) for travelling expenses, and 35 marks (1*l.* 15s.) a month for office rent and warming, with a lump sum of 300 marks (15*l.*) for all other office materials and expenses. For his professional services Herr Redtenbacher proposes he should be paid at the rate of 20 marks (1*l.*) per day (of seven hours). Out of this he would have to pay for any other travelling expenses he might incur connected with the particular task he had in hand. All original sketches and documents drawn up in connexion with the restoration to remain the property of the board or authority employing the architect; but the latter to have the right to make copies, and, if he pleases, to publish them. Herr Redtenbacher proposes that there should be, first, a special and distinct agreement respecting the preliminary sketches and inquiries; and secondly, a fresh arrangement for the production of the plans of restoration with all the requisite drawings. After the plan has been accepted, and the architect authorised to carry it out, then the writer proposes that he should be paid by a fixed monthly salary, or, if more agreeable, quarterly or yearly, with a regular allowance for office assistance, rent, and materials. The new proposal, which, it must be confessed, is sufficiently vague, is expected to call forth a variety of comments and counter suggestions.

The late Mr. Spottiswoode.—At the annual general meeting of the Society of Arts, held on Wednesday, June 27th, the following resolution was passed:—"That this meeting of the Society of Arts desires to express the deep regret with which it has received the news of the death of Mr. William Spottiswoode, one of its Vice-Presidents, and its sense of the loss which the Society has sustained by his decease. In him, England loses one of her most remarkable men of science, science itself one of its greatest ornaments, and all who knew him a sincere and valued friend. Besides devoting his own time and thought to the advancement of knowledge, he was ever ready to lend to all engaged in like pursuits the assistance of his experience and his wise counsel. In thus placing on record their own appreciation of his services, the Society desires to express its feelings of sympathy with his widow and family, and also with the Fellows of the Royal Society, of which he was the honoured and beloved President."

COSTUME.

WE have been, in books of natural history, characterised as the only animals that really laugh, also as cooking animals, as no other creature makes use of fire for preparing its food, and there have been various other definitions of us, but none, perhaps, are more distinctive than that we alone of all the animal kingdom wear clothes, *i.e.*, clothes prepared by ourselves and not by Nature. At least, there are very few tribes on the face of the earth, and these are the very lowest of the human species, who are entirely destitute of dress and go about altogether nude. Other animals, so to speak, have their coverings of protection naturally supplied, which undergo no changes save in some cases those of season, when in the winter a thick fur takes the place of a thinner coat, and even in birds occasionally some variation of colour occurs. Thus, comparatively, the creatures of lower natural history are always, or nearly always, dressed alike. They make habitations, and birds especially build most wonderfully in the matter of nests, but they do not make to themselves clothes. On the other hand, not only do we do so, but the varieties of our dress, still further diversified by the styles of raiment of the two sexes being nearly always markedly different, are almost infinite. Costume is a subject which evidently affords the opportunity for a vast degree of invention, not only in the way of meeting the uses of dress, but also in that of varying its fashion in conformity with climate and the tastes of nations and of individuals. Thus does its representation notably come within the province of art, and indeed exists as one of its chief elements. In the two fine arts of painting and sculpture, as the direct accessory to the human figure, costume is divisible into three kinds, which may perhaps conveniently bear the designations of the classical, the general, and the actual. Each of these treatments of raiment and drapery has its appropriate mission, and is calculated to assist materially and forcibly in compositions of human figures. It is essential, however, that these methods should be used appropriately, and not the one adopted when one of the others was more suitable, which has been a not unfrequent error in both painting and sculpture.

Now that art has, in purely historical subjects, settled down into the common-sense propriety of representing the actors of all events in the costume that they wore, we are apt to forget within how recent a period the contrary was the received opinion of, not only individuals of refined taste, but of undoubted authority at the time. In respect to this subject the Royal Academy Exhibition of 1771 takes especial rank by reason of one picture it contained, namely that of the Death of Wolfe, by West; for in respect to the question of historical costume this work formed a turning-point and epoch in English art, as recounted by Leslie in his life of Sir Joshua Reynolds completed by the late Mr. Tom Taylor. "Until this picture was painted no work had been produced by a painter of 'high art' which aimed at the literal representation of a contemporary event. History in high art had disdained historical fact. Sir Joshua Reynolds had told the students of the time that historical truth and local circumstance were incompatible with the grand style." West has himself recorded in the following words the consternation with which his unheard of intention was received:—

"When it was understood that I intended to paint the characters as they had actually appeared on the scene, the Archbishop of York called on Reynolds and asked his opinion, and they both came to my house to dissuade me from running so great a risk. Reynolds began a very ingenious and elegant dissertation on the state of the public taste in this country, and the danger which every innovation incurred of contempt and ridicule, and concluded by urging me earnestly to adopt the costume of antiquity as more becoming the greatness of my subject than the modern garb of European warriors. I answered that the event to be commemorated happened in the year 1758, in a region of the world unknown to the Greeks and Romans, and at a period of time when no warriors who wore such costume existed. The subject I have to represent is a great battle fought and won, and the same truth which gives law to the historian should rule the painter. If, instead of the facts of the action, I introduce fiction, how shall I be understood by posterity? The classic dress is

certainly picturesque; but by using it I shall lose in sentiment what I gain in external grace. I want to mark the place, the time, and the people, and to do this I must abide by truth." After this was said they went away, West recounts, and did not return until he had the picture finished. Then, he says, Reynolds seated himself before the picture, examined it with deep and minute attention for half an hour, when rising he said to Drummond, "West has conquered. He has treated the subject as it ought to be treated. I retract my objections. I foresee that this picture will not only become one of the most popular, but will occasion a revolution in art."

The above arguments in West's able reply to the objections of the great Sir Joshua will be acknowledged as so just and admirable as to be well worthy of quotation, and the test to which he put them in the excellent painting he produced in accordance with them, so triumphant, that it may be accepted that together they were of essential service in putting the question on a right footing, and in causing that change in public taste which Sir Joshua so generously predicted. The event we have been recounting took place little more than a century ago, namely, in 1771.

Much later, however, than this period, and, indeed, subsequently to the art competitions in Westminster Hall in 1844, did the same feeling descanted on by Sir Joshua in respect to costume, but in this case in reference to the sister art of sculpture, still retain its hold; for at that time, not forty years ago, it was seriously debated by the Fine Arts Commission of the Houses of Parliament whether the series of statues now in St. Stephen's Hall in that edifice should be habited in the dresses of their periods or in classic costume. This doubt and discussion took place at the time when the first three statues,—Clarendon, Hampden, and Falkland,—were commissioned, and even the erudite and tasteful secretary of the Commission, the late Sir Charles Eastlake, viewed the subject as worthy of serious deliberation. Fortunately, however, common sense and historical truth prevailed, and evidently this series of statues, treated as they now are, and which occupy the pedestals in that hall, have far more interest with the public, and are altogether much more satisfactory, than if they had been habited in Greek or Roman costume or even in raiment and drapery more general than their individual and special dresses which are suitably historic.

With respect, however, to other classes of subjects opinions may vary. The actual truthful costume is now accepted as that which is the most proper to subjects purely and solely of history, and as giving the most value to their representations. On such occasions, however, as when the historic element merges into the poetic or religious, fresh and further thought may be advisable. In these departments of art, dignity, refinement, grace, beauty, and solemnity may in their turn be held as beyond all other considerations essential, and the actual in costume may appropriately be called on to give way to them, which may lead to the adoption in its stead of the classic or the general.

Classic costume is assuredly frequently the most favourable for purely poetic subjects; and general costume, namely, that composed of draperies not made up into dress, but simply consisting of flat pieces of fabric, disposed around the figure in simple folds, the most agreeable for the larger portion of the raiment of the principal personages in religious art. Notwithstanding the honest and conscientious ardour of the so-called Oriental school, the majority of serious thinkers and lovers of art will probably always adhere to preference for that style of draping our Lord and his apostles which was adopted by Raffaelle and his school, and for the following reason in addition to that of the superior dignity of mien and sentiment thereby attained. The teachings of the Bible are for all countries and ages, in conformity with which accepted conclusion it appears most agreeable to adopt for the costume in art-illustrations of sacred writ such a general character in the robes of garment in which the actors in them are represented as should harmonise with the universal sentiment and object of the doctrine with which they are associated. It seems, therefore, open to objection that attention should be called away from the more important objects of a work of sacred art to the lesser ones of the details of dress by their being made notably peculiar; for, if this be the case, surely it may be acknowledged that more is lost than gained, and that the general impression and mission of art are thereby endangered. It may not be denied that this point is one open to discussion, but there seems reason to believe, whatever oscillations of opinion may take place on this subject, that it will always gravitate, and mainly return, to the conclusion adopted by the great masters of the Italian school, as well as by Flaxman, Overbeck, Eastlake, and by very far the larger number of those artists who have treated subjects of this class. Even in their works, however, some portions of the costume are of garments partly cut and fashioned, and occasionally, for instance, the raiment of the upper part of the body, has sleeves for the arms; but for the most part the vestments consist of simple and ample dispositions of draperies of flat pieces, and, in accordance with these examples, apparel for the grand style, even when made up and fashioned, should be simple; and the dalmatic robe may be mentioned as one of those to which no exception can be taken.

In the sister art the series of Christ and the Apostles, by Thorwaldsen, affords an opportunity for appreciating the fine effect of adopting this general style of drapery in the representation of sacred subjects. In this case, possibly, it may be remarked that, with some disadvantage to the noble statue of our Lord, the especial studies of the great sculptor has led him to make the whole appearance of the work possibly somewhat too Greek; but at any rate we must feel that no precise Oriental costume of Palestine would have produced so dignified an effect as the grand and simple drapery selected by the Danish artist.

Sir Joshua Reynolds selected occasionally much that was classic in the costume of his female portraits, especially when they are introduced in compositions of full-length figures; but he also often adopted what we have called general costume, as in his grand picture of Mrs. Siddons as the Tragic Muse, in which may be traced the impression made on him by the draped Sybils of Michelangelo in the Sistine Chapel, without his having seen which it seems doubtful whether the above-mentioned noble composition would have ever been conceived. In this eminent work pure portraiture and even history gave way to a grand poetic vision, and thus the treatment of the accessories was judicious and truly in accordance with the best principles of art.

In respect, however, to definite and distinct portraiture of a purely historic nature, it is fortunate that we need scarcely be under the apprehension that our royal personages or warriors will now be garbed in the dress of a Roman centurion like the figure of James II. by Grinling Gibbons, behind Whitehall, although still occasionally too classic a form of drapery may be said to have been adopted in some more modern examples of portrait statues. In the case, however, of busts it appears to be still a moot point whether the practice of Chantrey and Behnes in their modified and artificial style of drapery is to hold its ground against the more actual coat and neckcloth. Perhaps it may be well that this variety of treatment may continue for the present, and until our male costume is altered for the better, when there would appear but little excuse for the prevalence of a mode of draping portrait busts which cannot be supported as historical, and, therefore, renders them less valuable as records of the person and his time. Nevertheless, no doubt the subject is open to the comment that the abstract nature of sculpture, in seeking so much to represent especially the mental quality of the original, removes it in degree from the rigid criticism in this respect that might attach to a picture. Whatever, however, may be said against draping portrait statues in dresses that the subjects did not wear, we cannot but view with admiration the magnificent Lorenzo of the tombs of the Medici family in Florence, which is in Roman costume, and also the statue of Dr. Samuel Johnson in St. Paul's Cathedral, in which the idea of Bacon seems to have been to represent him as an intellectual Hercules, reminding us of him carved by the chisel of Glycon. It is true that he is not represented so nude as the statue of the first Napoleon now in Apsley House, but, nevertheless, the drapery is so loosely and classically arranged, that much of the body is left exposed. In the sister art of painting evidently no such treatment of a portrait of the lexicographer and essayist would be tolerated now, although we must acknowledge that the cathedral would be deprived of one of its finest works of sculpture were it without this fine statue.

We may, indeed, trace in the course of a discussion such as the above, that it is unsuitable to attempt to set up, on questions of fine art, too hard and fast rules, which should rather, on the other hand, be liberally elastic. Still, some that are general appear salutary for our guidance, and among these, in respect to costume in both painting and sculpture, that the adoption of Actual costume in portrait and historic subjects,—of that which is Classic in those which are poetic,—and of that kind which we have entitled General, in those of sacred art, is a practice which will usually meet with the approbation and support of those lovers of art who give most consideration to the subject.

PASSAGES IN AN UNSUCCESSFUL CAREER.

IV.—MY FIRST LITERARY ADVENTURE.

IN one of the strongest Presidential addresses ever delivered within the walls of the Royal Institute of British Architects, the late Mr. Street recommended the younger members of that body to address themselves to the cultivation of the literary faculty. Nothing, he said, would so much help them to a first footing on the ladder that leads to success. He spoke with authority, for he was himself almost as distinguished for his literary as for his artistic attainments, and the gold medal of the Institute, the highest honour in its gift, was awarded him expressly on account of his proficiency in both arts. As a writer he possessed an irresistible power, and carried his readers along as with the impulsive force of a mountain torrent. It is probable that his name will be remembered by his writings as long as by the buildings he erected; indeed, it is conceivable that, with the comparatively short lives of modern buildings, swept away, as they are, to make room for "improvements" of all sorts,—and liable, as they now-a-days are, to new and special modes of swift destruction,—that his literary achievements, "more durable than brass," will outlast all the other memorials of his genius.

But, while heartily agreeing with him as to the desirably of cultivating the literary art, I should be disposed to recommend it upon other grounds than as being conducive to professional success. In spite of some conspicuous exceptions, successful architects are not, as a rule, authors; and, conversely, successful authors are seldom prosperous architects. Mr. Street was able to pose as an example of success in both kinds; but we are not always the best judges of the forces which have placed us where we find ourselves, and he would, in all probability, have been quite as eminent as an architect if he had never written about the art at all. This is an age of specialists, and an architect runs considerable risk in cultivating too seriously any of the subsidiary arts. We have in recent years seen instances of architects who failed to obtain due recognition of their abilities as such because they had publicly identified themselves with painting, and it may well be doubted whether the reputation of a *littérateur* would not operate against, rather than in favour of, the professional prospects of any architect. Mr. Ruskin has levelled bitter reproaches against a public who still persist in looking upon him as an *amateur* artist because of his splendid success in another field, as if one *could not* be ambidexterous. It is, therefore, I think, safe to advise the student who may have a literary turn not to burden himself with works which are calculated to absorb a disproportionate amount of his time and energies, and draw him off from the real aim and purpose of his life. Prolonged and elaborate inquiries into subjects which are but remotely connected with the practice of art, and, if his studies take a biographical bias, such exhaustive and comprehensive themes as, let us say, "The Lives of the Speculating Builders," may well be left to those who have leisure for such enterprises.

The world reads books less and less, and magazine articles more and more, and the student will find in exercises of this character, which can be taken up in the intervals of business and laid aside in the presence of more important concerns, ample scope for the utmost nicety of literary workmanship.

One strong recommendation of this form of literary employment is that it is fairly remunerative. It takes a good many short essays to make a book, and then it is not so easy to

publish a book,—without a risk that all cannot afford,—as it is to write one. Moreover the book may be still-born, whereas a periodical provides you at once with a circle of readers and brings your work under thousands of eyes. You obtain a hearing; and, if your work be worth anything, it stands a chance of being gathered up into a book hereafter, and, if it is worthless, it secures a decent passage to oblivion without the shame of an open failure.

There are times when the pursuit of literature is almost the only reasonable solace within our reach. "Mr. Esmond," you will remember, in his love troubles, "wrote a deal of prose and verse." When displeased with the conduct of "Miss Beatrix, he would compose a satire, in which he relieved his mind. When smarting under the faithlessness of women, he dashed off a copy of verses, in which he held the whole sex up to scorn." This is a true touch of nature, and I recommend the prescription to every perplexed and dispirited artist.

Apart from the solace which literary practice affords,—and this cannot be over-estimated,—it really forms a valuable aid to the architect in his proper employment; for in the conception and execution of good literary work there is something not altogether alien from his own. There is the general scheme, or ground-plan, the adjustment of the *ensemble*, proportion, variety, light and shade, and that elaboration and finish of the details which gives to the whole what we mean by "style."

The qualities of first-rate literary work are only really known to those who have tried to attain excellence therein, and it is something if the attempt lead one to appreciate and enjoy the more the innumerable charms,—the force, the fluency, the easy grace, the varied style, and the grand organ roll of melodious diction which inform the masterpieces of our great English writers. The labour expended in acquiring facility of expression will be its own reward in lightening many an otherwise irksome task; and if the young architect cannot scatter the flowers of rhetoric over the prosaic pages of his specifications, he can with less effort make them perspicuous and intelligible,—qualities which such documents do not always possess.

Some years ago a gentleman, well known in literary and artistic circles, but hitherto unknown to me, when engaged in organising an artistic journal, wrote to me for a series of articles on stained glass. He knew me by repute as an architect, and assumed that I knew enough about stained glass to supply him with half a dozen papers on the subject. I replied that I was gratified by his request, but that I knew no more about stained glass "than my even Christian"; that W—— did know all about it, and had, moreover, the pen of a ready writer,—which I had not. My correspondent replied that he would get the stained-glass articles from W——, and that he would thank me to supply a series on "Equestrian Statues." This was too much. I answered that whereas I did know a little about glass, I knew nothing whatever about equestrian statues; that if I must write at all, I should prefer to treat of something about which I knew a little rather than of what I knew nothing. Whereupon he asked me to take up any subject which I felt most competent to handle.

You know the story of the medical student who appeared before the examiner for the fifth time? "Really," said that functionary, "I seem to have been very unfortunate in selecting subjects for your examination. Pray tell me what you are best 'up' in, and we will try that." "Sirr," replied the young man, "I'm sorry to say that I *feel aqually onable to answer that question also*"!

And his case was, in a measure, my own. However, I thought the matter over, and after some delay succeeded in producing that series of papers which the intelligent reader no doubt perused at the time with all the attention they deserved. Be that as it may, the writing of them was a source of much pleasure, for the occasion compelled me to look into some old books long forgotten, and to read some new ones which I should not else have opened; and as an incidental advantage the employment led to collateral lines of inquiry and suggested subjects for future papers. In short, so interesting, and, indeed, fascinating, did the occupation thus accidentally commenced become, that from that day to this my hand has been seldom absent long together from one or another of the artistic periodicals.

And now I can fancy that I hear the querulous reader exclaim, "This is some impostor who wishes, under cover of a misleading and mendacious title, to parade his cleverness and versatility, and, bewailing, hypocritically, his hard lot, to take credit for an unbroken series of successes."

Success, my irate friend, is relative. *Il y a des dégrés.* The merchant who amasses a fortune;—the artist who decorates his name with a coveted alphabetical addition;—the actor who is nightly greeted with the plaudits of intelligent audiences;—the preacher whose exhortation rings like a trumpet call through the land;—these, in their several spheres, are all successful men.

It is true that I have not as yet sought the hospitality of the workhouse, nor have my children been seen begging their bread. But if a life of strenuous effort is rewarded with neither fame nor fortune, neither empty praise nor solid pudding,—if it be my lot to

"Live forgotten and die forlorn,"—

then, in spite of having earned a bare subsistence, I must be written down a failure; and my epitaph should run in the simple but touching words of the immortal Mr. Tapley (who was himself in a manner related to my profession):

"Here lies a man as *might* have come out strong,
But it was denied him."

LOCKS AND KEYS.

THE session of the Society of Antiquaries closed on Thursday, when Col. Fox Rivers gave a *viva-voce* description of a wondrous collection of locks and keys of all ages and from all countries, which occupied the table in the centre of the hall, whilst the walls were covered with drawings illustrative of the principle on which the locks themselves were constructed, and the keys used to open them. Without following Col. Fox Rivers's vivid description, which will shortly be issued to the public, it is interesting to trace the growth of these door-fastenings and treasure-keepers. The inventive Chinese had almost constructed a Bramah lock, when Egypt herself was young, and the keys found in our tumuli and tombs show how much ingenuity was expended in the construction of these supposed safeguards in all ages. The rude savage was contented, in all probability, with a combination of knots, and, indeed, Capt. Galton, in his "Art of Travel," laments the want of some form of knot which would, whilst holding tight the stores, show whether they had been tampered with or not,—thus asking for a Chubb's detector lock of sinew or string in the bush or the desert; but such a series of knots does exist, and possibly a native guide or attendant would fail to untie the famous knot which so puzzles ingenious monkeys. Alexander found it easier to cut than untie the famous Gordian knot, and many primitive locks in use, even in the British isles, depend on a combination of string and wood, which suffice to keep out cattle, if not burglars. It is to guard against the latter that modern ingenuity has been so freely expended, and it would appear really as if the latest Yale lock was only a modification of the well-known Egyptian model of some thousand years ago, and there are in existence examples of locks on the Egyptian model which have survived, and are found to answer their purpose even at the present time, and it has been suggested that with a slight modification this could be used with advantage to "lock" pictures on gallery-walls, so that they could be removed in case of fire easily and rapidly. This lock was obviously invented to secure a bar of some size, and has since been used on a much smaller scale.

Some of the earliest and most perfect specimens of locks which have come down to us are padlocks and fetter-locks, some, apparently, only adapted to fasten the girdle of a lady, whilst others are ponderous enough for the heaviest chest. Examples of these are in every museum of importance. They have been found in London, in Colchester, and in Silchester, as well as in many other Roman sites in England. Some of these might be copied with advantage by our metal-workers at a time when cheapness of production is not the rule, as at Willenhall, where good locks can be made and sold at a profit at a few half-pence a dozen. When some of the examples shown by Colonel Fox Rivers come to be more generally known it is possible that there may be some principle which even our acute lock-makers have failed to discover. It is well known that Bramah believed his famous lock to be unpickable, because he could not pick it himself, and this has been the case with other inventors, though, perhaps, the triumph of Hobbes in 1851 in proving that the champion lock was pickable excited the most attention; but we shall not, in our desire for small keys, imitate the lock which required a species of sickle to open it, for this key has to be carried over the shoulder like the Egyptian keys which are mentioned in Isaiah and figured in the great temple of Karnac, is in use at the present day. These sicklelike keys could only be used to move a bolt on a large gate, and when, as in many modern instances, the bar was hung in an iron frame and suspended in the centre by a chain, a smaller key was required to open it, and thus gave rise to those ring keys described by Tacitus, and which answered the purpose of a signet ring as well as a key. Many of the wards of these Roman keys are so much like the ordinary flat or French latch-key in common use a generation ago as to suggest a doubt as to their antiquity. The curious implements found in Anglo-Saxon graves, and which are supposed to be keys from their being fastened together by a ring and slung at the girdle, are, as a rule, but rude pieces of bronze without a pretence to the formation of a ward, and in this particular only do they resemble the keys of the Yale locks of to-day. They could only be used to raise the rudest form of latch.

Amongst the locks which seem to have been most popular, and which are indeed the most curious, are what are known as "puzzle locks." They are found in the shape of a bird, as in India. They are hidden in the interlaced bolt-and-belt ornamentation of an Elizabethan linen-chest, or in the form of a "letter" lock, and then they are independent of a key. The former depend on a secret spring moving the escutcheon; the latter, on a certain combination of words, which require to be remembered accurately by the person using the lock or it becomes useless to him. Some of the more modern letter-locks are very ingenious,—in fact, more ingenious than secure. A couple of centuries ago they were far more popular than they are now, and in the time of our grandfathers, and even later, these secret springs and hidden mechanism were freely used by the novelists of the Mrs. Radcliffe school. They are immortalised in Beaumont and Fletcher's play of the "Noble Gentleman," where we find,—

"A cap case for your linen and your plate,
With a strange lock that opens with A M E N."

It is a somewhat singular circumstance that the best of our modern safes have locks which closely follow the secret apparatus described by the Marquis of Worcester in his "Century of Inventions." He describes a little key, not weighing more than a shilling, which shall be capable and strong enough to bolt and unbolt "round about a great chest, an hundred bolts, through fifty staples, two in each, with a direct contrary motion, and as many more from both sides and ends, and at the same time shall fasten it to the place beyond man's natural strength to take it away." He also describes a curious escutcheon, and it was for the invention of a "secret apparatus" of this kind that the Society of Arts awarded one of their first premiums to Mr. Marshall, shortly after the commencement of their Transactions, in 1784.

That there were warded keys and locks from Roman times is indisputable, and they were excellently made by the early English metal-workers. No one suspected their weakness until a century ago, and then their unreliability was proved by the easiness with which they were picked by the simplest novice in house-breaking. In vain were back-springs invented, and French tumbler locks introduced. A simple piece of twisted steel sufficed to open them all. The ponderous wooden and iron contrivances which had been trusted as locks should be trusted if they are reliable, were found to be of little worth. The tumbler locks of Barron and of Bramah, patented as far back as 1778 and 1784 respectively, head a long list of inventors of many tumbler and wheel locks. There have been locks with master-keys invented, and changeable key-locks invented for doors of safes, and other receptacles for valuables. These hardly came within the cognisance of the Society of Antiquaries. They belong rather to the domain of the mechanical engineer.

Many of the latter are nearly perfect specimens of simplicity and security, with keys which, if not so light as those mentioned by the Marquis of Worcester, are at least sufficiently portable to be carried in the waistcoat-pocket. There are specimens of many of these ancient locks in South Kensington, and in the British Museum, with keys remarkable for beauty of design as well as workmanship; showing, if another instance were needed, how well beauty can be combined with utility.

THE PLANNING OF HOSPITALS.

IN the discussion which followed the reading of Mr. Robins's paper* on this subject at the Parkes Museum, on the 28th inst.,

The Chairman (Dr. F. J. Mouat, of the Local Government Board) said that before proposing a well-earned vote of thanks to Mr. Robins for his admirable paper, he hoped the meeting would be favoured with observations from some of the audience, amongst whom he saw several gentlemen who were well qualified to speak on the subject.

Dr. G. V. Poore said he desired to make a few remarks upon Mr. Robins's very excellent paper, which seemed to be a most valuable one, inasmuch as it showed how an architect was impressed with the fact that the building of a hospital was a very grave responsibility, and that if the plan of a hospital was not thoroughly well considered, what was meant for a blessing might turn out to be a curse. Now, there were certain things insisted upon by the constructors of modern hospitals as to the necessity of which he (the speaker) was to a great extent a disbeliever. Mr. Robins had described the Friedrichshain Hospital at Berlin as a one-storied pavilion hospital, but it was perfectly certain that in a great city like London, where land was sold by the square inch, one-storied pavilion hospitals were out of the question. Nor did he think that they were necessary. Certainly they presented great inconveniences, for the enormous areas which they occupied (where they were of any size) greatly increased the trouble and difficulty of administration. Take, for instance, the Johns Hopkins Hospital at Baltimore, which was built to accommodate 400 patients, but which occupied a site of about the same area as the Horticultural Gardens at Kensington. A patient lying (say) at the Albert Hall, and for whom a chop had been ordered, would have to wait for it until it could be brought (say) from the South Kensington Railway Station. It was all very well to say that in hospitals covering such large tracts of ground tramways, speaking tubes, electric bells, and all other appliances for saving time and labour, were introduced; such appliances were apt to get out of order, and that, very often, at most critical and inconvenient times. For this and other reasons, then, he was perhaps somewhat heretical in some of his opinions as to modern hospital planning. He did not speak without having given some attention to the subject, for he had made a plan for the re-building of University College Hospital on its present site which had met with Mr. Waterhouse's approval. That plan was to be seen in the Museum. In that plan he had endeavoured to carry out what was, he felt sure, a very great and important principle in hospital planning, viz., that it should not be possible in a hospital for any person to pass from one ward to another, or from one story to another, without going into what was, practically, the open air. In other words, he would make the staircases and corridors of communication open to the air on each side. A hospital should not be considered as one large house, but rather as a series of houses, which the doctor should visit in turn just as he would go from house to house in a village, passing into the open air in going from one to another, and being clothed for out-door walking according to the weather. The great defect in many of the costliest of the pavilion hospitals was that the staircases were in the pavilions themselves. That was a vital error. Where the staircases were *in* the pavilions it was quite possible for a disease germ to pass up or down the staircase and along the corridor from one ward to another. But not only were staircases placed in the heels of the pavilions, but lifts going from floor to floor were sometimes placed there, with what probable result in case of infectious disease medical men would know. When he went over a large pavilion hospital some time ago, in company with one of the medical men connected with the institution, he put his head inside the shaft of one of the lifts which were to be found there. His friend quickly and energetically warned him against what he was doing by calling out: "Take care! Take care! There is a case of scarlet fever upstairs!" That showed what his friend thought of the arrangement. A great evil in many modern hospitals was that very much money was spent, and a great deal of space was given, where both money and space might be saved. Because ample cubic capacity and floor space were essentials (though within well-defined limits) in the wards themselves, it was not therefore necessary to have every little office and adjunct planned on the scale of a palace. Some people had held up the Hospital Ménilmontant as an example for imitation. There the patients looked out of their wards on to 15 acres of garden ground. Much good might it do them! It should be remembered that fresh air, to do the patients in a hospital any good, must be on the *inside* of the panes of glass. In the same hospital the corridors and staircases were needlessly wide and too numerous. In the new Infirmary at Edinburgh, too, the width of the staircases and corridors was somewhat excessive. Another point to which he wished to call attention was that in many modern hospitals the ward kitchens, water-closets, and other offices were a great deal too large. Ward-kitchens were sometimes made ridiculously large,—big enough to roast a baron of beef. What was wanted was merely convenience for making such things as a little beef-tea or for cooking a chop, and in these days a gas-jet would answer all purposes. The water-closets at St. Thomas's Hospital were enormously big. It should be remembered that there was a limit to the advantages of spaciousness, for where height and area were in excess not only was the initial cost of the building increased, but the cost of maintenance and the difficulty of ventilation were increased also. In his (the speaker's) plan for the reconstruction of University College Hospital, the kitchen, the dead-house, the *post-mortem* and lecturing rooms, and, in short, everything that was likely to smell, was placed on the top story of the building. That had not been done anywhere else, he believed. [The Chairman: It has been done in America.] At any rate, it had not been done anywhere in this country. He understood that at Owens College, Manchester, the dissecting-room was on the top story, and that the arrangement was very satisfactory. Obviously that was the proper situation for such places, for at the top of a building there was a great deal more light and air than could be obtained down-stairs. As to ventilation, he thought there was no doubt that in this country, where the climate was mild, natural ventilation was the best. Where there was an elaborate system of ventilation by flues, who was to see that the flues were kept clean? He believed that at the Johns Hopkins Hospital at Baltimore there were many miles of ventilating pipes, while in the new Infirmary at Edinburgh there was a long extent of extracting pipes. The action of these extracting-shafts was, no doubt, perfect in theory, but did any one ever know a chimney that did not smoke at times? Was it not possible that these extracting-shafts would sometimes be found acting as inlets? Aware of the nature of the matter that collected in such extracting-shafts, he should not like to be lying in a bed near such a shaft when it began to "smoke,"—*i.e.*, to serve as an inlet.

Dr. Steele said he felt very diffident in saying anything on the subject, seeing what had been done and said by the chairman, Captain Galton, and Mr. Robins; but he was afraid he must confess himself, with Dr. Poore, the holder of somewhat heretical opinions as to hospital construction. His experience disposed him to stand up in defence of the old-fashioned quadrangular planning of hospital buildings, as against the pavilion system, which was an importation from abroad, having been in existence in Paris, Brussels, and other Continental cities, long before it was introduced into this country. In his opinion the quadrangular form of plan for hospital buildings made the administration much easier; it facilitated ventilation, afforded pleasanter outlooks to the patients, and it was better adapted to clinical and scholastic purposes than the pavilion style of building. He did not object to the pavilion ward as a ward, but he objected to taking a number of those wards and arranging them side by side on the pavilion principle. In the case of the Herbert Hospital the blocks of wards were about 100 ft. distant from each other, and were connected by corridors; being three-storied buildings, the spaces between them must be, to a certain extent, filled with stagnant air. What arrangement could be more miserable for the patients than the pavilion principle of planning, whereby the patients in one block could only look out towards the patients in another block? Again, in a large hospital planned on the pavilion principle the distance from one extremity of the building to another was often excessive; in the case of St. Thomas's Hospital it amounted to a quarter of a mile or more. How, under such a condition, was it possible for any one person to exercise any proper supervision over the building? For these reasons he was in favour of the quadrangular form of planning for hospitals, the buildings being arranged somewhat in the form of the colleges of Oxford and Cambridge, or, more nearly, in the form adopted at St. Bartholomew's Hospital, in the City of London. The blocks of this hospital were arranged on the four sides of a quadrangle, but were disconnected at the angles, leaving plenty of space for the circulation of air all round each block. In his experience there was no hospital better adapted for clinical or scholastic purposes, or more easy of supervision, than St. Bartholomew's. Although, as he had said, he had no objection to a pavilion ward as a hospital ward, it was very difficult in crowded towns and cities to obtain adequate space for the arrangement of a number of wards on what was known as the pavilion system of planning. As regarded private or civil hospitals, supported to a large extent by voluntary contributions, the cost of land would often be a bar to the adoption of the pavilion system at the outset; while as to Government and parochial hospitals, their cost would be unduly augmented. To take the case of a voluntary hospital about to be established in some locality where its need had been felt. The committee looked out for a site; very likely that site would be covered with house-property of a poor character, and in a very thickly-populated locality,—for it was of no use to build hospitals except in the midst of the people for whose benefit they were intended. The site having been cleared, upon a portion of it a building was put up to contain fifty or 100 beds, and possibly the building would be rectilinear in form, and three or four stories high. In the course of a few years the growth of the community and an increase of means might render an enlargement of the institution not only desirable, but necessary; such enlargement could then be effected by building another block either facing the first block, on the opposite side of the site, or at right angles to it. Successive enlargements might follow, each one taking the shape of a separate block, until the quadrangle was enclosed on all sides, the corners, however, being left free, as at St. Bartholomew's. It was too often the case that when hospitals planned on the rectilinear system had to be enlarged, such enlargement could only be effected by putting on cross pieces either at the ends or the centre of the building, making it take the shape of the letter T or H. Such a method of enlargement was objectionable, as tending to agglomeration, and thereby rendering the buildings unfitted for their purpose. He quite agreed with Dr. Poore in saying that it was useless to attempt to build hospitals of a single story in this country, owing to the density of the population. He did not think that the pavilion system with ward blocks three or four stories high was the most economical, convenient, or efficient form of planning for hospitals, but would prefer to see detached blocks, arranged as at St. Bartholomew's, enclosing a space of about one acre in extent. As to the rate of provision of cubic space per patient, he thought that existing rules needed some modification in view of the fact that within the last fifteen or twenty years the antiseptic method of dressing wounds had come into general use, and hence the air of hospital wards was saved from contamination to an extent that would not have been possible before antiseptic dressings were in use. The air of modern hospital wards had thus every chance of being healthier and purer than formerly, and whereas it was the custom to allow from 1,500 to 2,000 cubic feet of space to each bed under the old non-antiseptic treatment of wounds, it

* See *Builder*, vol. xliv., p. 875.

was his opinion that with the general use of the antiseptic dressings from 1,000 to 1,200 cubic feet per head would be quite sufficient to allow in general hospitals, having due regard to the desirability of curing each patient as speedily as possible.

Professor Corfield said he would not attempt to add anything to what Mr. Robins had said as to the construction and planning of hospitals, as his remarks on that head had been so ample, and had been criticised by the previous speakers. But Mr. Robins had incidentally referred to the evils of the practice (once very common) of massing together patients suffering from all sorts of diseases in general hospitals, and to the overcrowding of wards. The disastrously high death-rate resulting from these practices at the old Hôtel Dieu in Paris was a lesson never to be forgotten by those who had the designing and management of hospitals committed to them. Mr. Robins, so far from over-estimating the evils of such malpractices, had under-estimated them. The practice of placing cases of infectious diseases, such as small-pox, scarlet fever, measles, and other communicable diseases, in the general wards of a hospital, could not be too strongly deprecated, and there was still, he was sorry to say, necessity for deprecation on that head. In his experience he had seen communicable diseases pass round a hospital ward just as the surgeon would pass round, occasionally missing-out a bed here and there, just as the surgeon would, because the patient was too well to be noticed. Not very many years ago he had considerable difficulty in preventing the introduction of scarlet fever patients into the wards of a general hospital in London; and it was still the practice in most of the London hospitals to introduce infectious cases into the general wards: he referred to cases of typhoid fever, which, there could be no question, was a communicable disease, and which he had no doubt he had seen communicated within the wards of a hospital.

Dr. Dawson Williams said it was not necessary to go so far as Manchester in order to find an instance of the placing of a mortuary on the top of a hospital, as that had been done at the new Medical Schools of the Charing-cross Hospital, which, although a separate building, really formed a part of the hospital, as connexion between the buildings was effected by means of a tunnel beneath the intervening roadway. With regard to ventilating appliances, he might say that when he was clinical assistant in the Hospital for Consumption at Brompton, a committeee was appointed to examine into the ventilation of the building (the older one), partly because the wards were very stuffy, and partly because they were going to erect the new building. In examining the interior of the extracting-shafts, the committee found an extraordinary deposit of material, which was of the nature of a fine reddish woolly powder. Another thing the committee found out was that there was a tremendous current outward from the main extraction shaft, which was heated by a steam coil, although the majority of the extraction openings in the wards were either useless, or were acting as inlets. The whole system of ventilation was apparently reversed in its action. It was subsequently discovered that the majority of these ward extraction-shafts, which were very high, all leaked, so that the only result of the hot coil in the main extraction-shaft was to ventilate the spaces under the roof, which were not used. He went about a good deal amongst the hospitals of London, but he had no means of making a comparison as to the death-rate of hospitals planned on different methods. The surgeons at St. Bartholomew's, however, expressed themselves in the most favourable terms as to the healthiness of that hospital, which consisted, as had been stated, of four large detached blocks arranged on the sides of a quadrangle. One of these blocks was mainly, if not exclusively, devoted to administrative purposes, but the mortuary, dissecting-room, museum, &c., were entirely separated from the main blocks. After what Dr. Steele had said, and in view of the opinion of the medical men at St. Bartholomew's, he should like to know whether there was any authoritative objection to the disposition of what was essentially a pavilion hospital in a quadrangular form. Dr. Poore had remarked that it was an absolute necessity that modern hospitals should be built three or four stories in height. No doubt that necessity was imperative, assuming that our large hospitals must be built on town sites, but he was in favour of doing for the London hospitals what had been done for Manchester in the case of the Children's Hospital at Pendlebury. The main hospital was three or four miles from the centre of the city, in which there was a small central depôt for urgent cases and for cases which could not be safely transported a few miles. If our great London hospitals were taken to such localities as Hampstead or the Surrey Hills, leaving only comparatively small emergency hospitals in town for accidents and urgent cases, the results would be, he believed, in every way beneficial.

Mr. William White said that, as an architect, he desired to express his personal appreciation of the exhaustive manner in which Mr. Robins had treated his subject, his paper embodying apparently all the salient facts regarding a large number of the most modern hospitals. As Dr. Poore had said, the architect felt, and could not help feeling, a deep sense of his responsibility for the arrangements of a hospital which he might be called upon to plan; but he (Mr. White) maintained that that responsibility should not rest exclusively, or even chiefly, upon the architect, who should be able to look to the members of the medical profession for an authoritative declaration as to the requirements of a hospital. But the architect should be expected to plan and construct a hospital capable of meeting the requirements deemed necessary by the medical profession. The principles which could be most advantageously adopted in the planning of a hospital could only be laid down by medical men, and by them only after a long and tedious process of inspection and analysis of the working and results of different methods of arrangement. He was very strongly disposed to acquiesce in what Dr. Steele had said as to the needless waste involved in making the wards and offices of a hospital too large, for, of course, the larger a building, the greater the cost of its construction and maintenance, the greater the labour of administration, and the more difficult the ventilation.

The Chairman, in closing the discussion, said that great as was the amount of gratitude due to royal commissions, to Miss Nightingale, to Mr. Godwin, and others who had of late years thrown light upon the true principles to be observed in hospital construction, it should not be forgotten that every important change which had been effected was first advocated by M. Tenon, the Paris physician, who pointed out the extraordinary and awful circumstances of the old Hôtel Dieu, and whose work, although written close upon a hundred years ago, was still, in many respects, the very best book which had been written upon the subject of hospitals. Within the last few weeks he had had an opportunity of seeing, in company with Mr. Saxon Snell, the magnificent hospital near Berlin to which Mr. Robins had referred, and he had no hesitation in saying that if those gentlemen who owned to holding heretical views on the subject saw the building for themselves they would speedily discard their heresy. Nothing more perfect or more admirable could be conceived. He quite agreed with Dr. Poore and Dr. Steele in saying that the hospitals must be placed in the midst of the poor. The best town hospital he had ever seen was the New York Hospital, which was six stories in height, the kitchen, laundry, mortuary, and other places likely to cause unpleasant odours being placed on the top stories of the building. That hospital was provided with a pleasant winter garden for the use of the patients, and the perfect ventilation which existed throughout the building showed that all difficulties of site might be, by proper structural arrangement, perfectly overcome. Notwithstanding what had been said in the course of the discussion, he still held it as a cardinal doctrine that the pavilion system of planning, as usually understood, was the best for large modern hospitals. M. Tollet's system of planning went even beyond that, and with results as yet unapproached in this country. The other day, being in Paris, he visited a hospital erected by M. Tollet on one of the bastions. It was located in a manufacturing quarter of the city, and was, therefore, much in request in cases of accident. In spite of the fact that the Assistance Publique had done its best to handicap the successful working of the hospital by overcrowding it, and by diverting some portions of it to other uses, the patients got well more rapidly than similar cases could be cured in the older hospitals, and they were enthusiastic in their appreciation of the building. He had also visited the military hospital at Bourges, constructed on M. Tollet's system, although even here the architect's views were not fully carried out, the military engineers having changed some parts of the buildings in execution. Now, although there were at Bourges extensive artillery foundries, in the carrying on of which the workmen often received very bad injuries, and although the hospital had been opened four years, there had not up to the present time been any pyæmia, or other bad results. The officers of the garrison spoke against the hospital (while admitting that the patients got well) for no other reason, it was said, than that, being three miles away from the town, its supervision by them somewhat interfered with their recreations. As to the difficulties of artificial ventilation, he was well aware of them. On a certain occasion it was his duty to inspect a Poor-law school, where he found, in one great room or dormitory, 174 children sleeping, many of them two-in-a-bed. The atmosphere was insufferably impure. In this school there was a great prevalence of eye and skin diseases, and no wonder, for all the windows of the dormitory were hermetically closed, and not made to open freely, the means of ventilation relied on being a large central shaft. This not seeming to act at all, it was examined, and was found to be blocked up, and further inquiry showed that it had been so blocked up for five-and-twenty years, and nobody knew it! Did time permit, he could recount many more incidents of a similar kind which had come under his personal observation in the course of his official duties. In conclusion, he begged to propose to the meeting a very hearty vote of thanks to Mr. Robins for his excellent and instructive paper.

The motion having been carried by acclamation,

Mr. Robins briefly replied, expressing regret that he had not included amongst the plans referred to the one proposed by Dr. Poore for the reconstruction of University College Hospital.

On the motion of Mr. Rogers Field, a vote of thanks was given to the chairman, and the proceedings terminated.

EXHIBITIONS AND CONGRESSES.

Berlin.—The medals and prizes awarded to exhibitors at the Sanitary Exhibition at Berlin will, by desire of the German Empress, be distributed by the Crown Prince. Last week the eleventh Annual Congress of German Medical Men met in Berlin, and officially inspected the exhibition, winding up the congress with a banquet within its walls on Saturday evening.

Zurich.—The committee of the Swiss National Exhibition invited the leading members of the Swiss newspapers to Zurich last week to discuss the question whether it would not be expedient to invite representatives of the entire European press to meet at the exhibition for a special journalistic festival. The reply was in the affirmative, and a committee appointed to carry out the idea. The programme for this international newspaper festival has now been arranged, and invitations sent to the leading organs throughout Europe. The festival extends from June 30 to July 2nd, and advantage is to be taken of the opportunity to found a General Swiss Journalists' Club.

Louisville.—Under the title of "The Southern Exposition at Louisville, Kentucky," an extensive exhibition of American manufacturers and raw products will be opened in the city in question on the 1st of August next, and will remain open till the middle of November. In addition to all kinds of natural produce, machinery, and manufactures, there will be an extensive collection of articles under the heads of music, literature, and art. One of the most important departments of the exhibition will be that of tobacco, in which leaf tobacco of every existing variety is to be shown, and which will be of greater interest as Louisville is the headquarters of a very extensive tobacco-growing district.

Cincinnati.—On the 5th of September the eleventh Exhibition of Industry will be held in Cincinnati. The show will embrace every kind of American manufactures, besides minerals and cereals, and objects connected with gardening, education, science, and fine art.

Railway Bridge over the Spey.—The laying the foundations of the Coast Railway bridge, at Garmouth, has been begun.

THE JEWS' FREE SCHOOL.

THE school, of which we present illustrations this week, is said to be the largest school in the world. It now educates 2,900 children. On completion of the new building, it will have places for 3,100.

Founded in 1817, and supported solely by voluntary effort, at a time when state education was hardly dreamed of, even by advanced minds, the school was at first planned for 600 boys and 300 girls, and was conducted on the Lancastrian system,—a system which enabled the maximum number of children to be taught, in a fashion, with a minimum of teaching-power. In those days the 600 boys were instructed literally under one roof, in one great room, 100 ft. long and 50 ft. wide, by one master and a few monitors; and the 300 girls in another great room, 70 ft. long and 40 ft. wide, by one schoolmistress and a few monitors. In the year 1840, when Mr. Moses Angel, the present head-master, first took command, he was the sole teacher of the 600 boys. Gradually this Arcadian simplicity of scholastic method had to give way to the spirit of progress, and the great schoolrooms had to be cut up into partitioned or curtained sections, in which separate classes of the various standards could be separately taught, each by its own teacher or pupil-teacher. In 1855 further changes and enlargements were made, necessitated by the growth of the Jewish population in the district, and in 1865 the accommodation of the school was nearly doubled by the addition of eighteen class-rooms, two covered and two open play-grounds, and a gymnasium.

When the Board schools were established under the Elementary Education Act of 1870, and especially when the London School Board appointed a Jewish head-master to its school in Old Castle-street, situate within a stone's throw of the Jews' Free School, it was thought by many that the denominational institution would be gradually crowded out of existence, or, at least, that its growth would stop. But, strangely enough, the contrary has been the case; and although acres of houses formerly occupied almost entirely by Jews have lately disappeared from the neighbourhood under the destructive hand of the Artisans' Dwellings Act, the demand for education within the walls of the Jews' Free School has constantly increased, and many hundreds of children have been refused admission from want of space.

The demands of increased numbers, and the equally cogent requirements of the Education Department, which rightly deprecated the old system of instructing several classes in one room, necessitated the removal of the old school-buildings, and their reconstruction upon modern principles, as indicated by our illustrations. But before the old buildings could be removed, temporary schools had to be built on the playgrounds to accommodate all the children. This was in itself a work of no small difficulty and expense, for it was considered that even for the few months occupied by the rebuilding, the number of places should not be diminished, and the area per child should not be curtailed; and the temporary accommodation has accordingly been so arranged that the work of the school has not been disturbed for a single day during the reconstruction.

Some idea may be formed of the magnitude of the establishment by the following figures. There are at present 1,750 boys, instructed by one head-master, fourteen certificated assistants, twelve assistants who are past pupil-teachers, and twelve pupil-teachers, in all thirty-nine male teachers. There are 1,150 girls, instructed by one head-mistress, nine certificated assistants, seven assistants who were formerly pupil-teachers, eleven pupil-teachers, three teachers of needlework, and two teachers of domestic work,—in all thirty-three female teachers. The annual expenditure is about 9,500*l*., derived from subscriptions, interest on funded property, rents, grants from the Education Department, and the penny per week paid by each child. The latter payment is generally made, but is not enforced in cases of known poverty.

The grant by the Education Department is considerable, amounting this year to 2,300*l*.; and this may be regarded as a fair measure of the educational success of the school. At the last inspection by H.M. Inspector of Schools, the passes were 98 per cent. in the boys' department, and 98¼ per cent. in the girls' department. This percentage is truly remarkable, seeing that so large a proportion of children are of foreign birth,—Germans, Dutch, Poles, and Russians,—only a short time resident in this country, and further, that all the children, girls and boys, are taught during ordinary school-hours Hebrew and religion, which are, of course, extra subjects, not counting as subjects under the Code.

The Jews' Free School is unique in another respect. Besides being an elementary school, it is a training-school for teachers; and it also gives a collegiate education to such of its male teachers as display special ability. Many of the latter have obtained degrees at the University of London, two having taken the M.A. degree, one the LL.B., twenty the B.A., while some scores have passed as undergraduates, many in honours. It is noteworthy also that all the staff of the Jews' Free School, and the principal teachers in the English and Colonial Jewish Schools, have received their training in the Free School, Mr. Angel, the head-master, and Miss Lipman, the head-mistress, giving instruction to the teachers after school hours. About a hundred teachers have, under this training, which is afforded to them free of cost, taken the certificate of the Committee of Council.

The president of the school is Sir N. M. de Rothschild, M.P. He, and many members of his family, take an active part in the management and support of the institution, and also defray annually the cost of clothing the more necessitous pupils, and supplying other needs for which the funds of the school would not be available.

The new building, which is four stories high, and has a frontage of 94 ft. to Bell-lane, and a return frontage of 116 ft. to Fryingpan-alley, comprises fifty-two class-rooms, arranged on three sides of a quadrangle, 80 ft. long, by 30 ft. wide. The committee-room, and the rooms for the head-master and head-mistress, are next the main entrance. The staircases are so disposed that each room is separately accessible, without any one class-room being required to be used as a gangway to another. The large number of staircases obviates the necessity for long corridors, and so enables the class-rooms to be lighted on both sides, and it also facilitates the rapid discharge of the school. The quadrangle is roofed above the second-floor ceiling-level with a skylighted roof, supported on circular laminated ribs, the walls of the quadrangle, with its cornices, friezes, panels, and other architectural features, being carried out in glazed bricks, chiefly cream-coloured, and with bands of grey, buff, and brown, the enriched panels and friezes being of glazed terra-cotta. The quadrangle, which thus forms a central hall, is intended to be used for examinations, and for distribution of prizes, and also on the high festivals as a free synagogue. The ground-floor class-rooms abutting on the central hall are divided from it by sliding sashes and framings in three heights, hung like lifting sashes, and so arranged that when raised they disappear behind a bulkhead; and in this manner the class-rooms can be thrown into, and united with, the central hall, on special occasions. Two galleries traverse the hall at the eastern end on the first and second floors, and, as the eastern class-rooms open on to these galleries by a series of sash-doors, which fold into a very small compass, these rooms also can be thrown into the central hall on special occasions, and an auditorium, 100 ft. long, and 80 ft. wide, can thus be improvised. At the west end of the central hall will be placed a raised platform and rostrum, removed from the old school. The structure with its reredos of oak, handsomely carved, was presented to the school by the committee, in memory of the late Alfred Davis, a treasurer and great benefactor of the institution.

The class-rooms, which vary in size,—the largest being for sixty children, and the smallest for thirty-two,—will be chiefly fitted with "dual" desks and seats, single desks and seats being used exceptionally. The central hall will be fitted with "convertible" desks, capable of being used either as desks, tables, or seats, with backs.

The cost of the new building with its fittings will be about 21,000*l*. The architects are Messrs. N. S. Joseph & Pearson, of 45, Finsbury-pavement. The contractors for the general works are Messrs. Ashby Bros., of Kingsland-road. Mr. James Ivin is the clerk of works, and Mr. Tester is the general foreman. The glazed bricks, faïence, and terra-cotta, have been supplied by Messrs. Wilcock, of Leeds. Messrs. G. Hammer & Co. are contractors for the school fittings; Messrs. Edwards, and Messrs. C. & F. Mansfield, for the stoves and heating apparatus. The works have progressed with remarkable rapidity. The old school buildings were not removed till April last. The new buildings are already roofed in, and will be opened in September.

OLD MEETING TRUST, BIRMINGHAM.

DESIGN FOR CHURCH, CONGREGATIONAL-ROOM, COMMITTEE-ROOMS, VESTRIES, BOYS' AND GIRLS' SCHOOLS, &c.

THIS design, submitted in limited competition by Messrs. Henman & Beddoe, architects, of No. 38, Bennett's-hill, Birmingham, is an attempt to provide a novel arrangement of buildings suited to the services of a Nonconformist body. While retaining purity of style in architectural detail, the conventional Church plan is entirely discarded. The treatment of the church is unique; a central octagon forms the body of the building, the peculiarity being that the octagon is placed with points, north, south, east, and west, allowing of a double nave with aisles, the latter used only as passage ways to the settings. No chancel is provided, such being a useless feature in the services of the congregation.

The advantages of the arrangement are that with the pulpit in a central position every sitting is in full view of and none are actually behind the preacher. The majority of the congregation are within a radius of 48 ft., and the greatest distance from the pulpit to any seat is but 78 ft. At the same time a striking effect of pier, column, and arch is obtained in the interior. The instructions to competing architects laid stress on the desire of the trustees to have the organ placed where the best musical effect could be obtained; consequently in this design it holds a prominent position behind the pulpit. The manuals are well in front of the instrument, allowing the organist to face the choir and be in a position to hear the combined effect of the voices and his playing.

The buildings accessory to the church have received study, and are arranged with due regard to the several purposes for which they are intended to be used. Separate entrances are provided for each department, yet by means of well-lighted corridors and convenient staircases direct access may be obtained from one to the other entirely under cover.

Entrances and exits are arranged so that large congregations may be quickly seated and as easily dispersed. Lavatories and conveniences have not been forgotten.

With every desire on the part of the trustees that the best design should be selected for erection, it is unfortunate that the result of this competition seems not to have given entire satisfaction, for although the "Suggestions" of the Royal Institute of British Architects were followed, excepting only that the assessor was not employed to draw up the "instructions." It would seem, from correspondence which has taken place, neither promoters nor competitors are satisfied that the best design has been awarded the place of honour. The indictment is that the assessor's report is inconsistent, and that only three of the seven designs were commented upon.

The architect whose design was placed first has been obliged to modify his plan, we are told, in several important particulars, to bring it into harmony with the requirements. The three premiated designs were placed in the following order:—

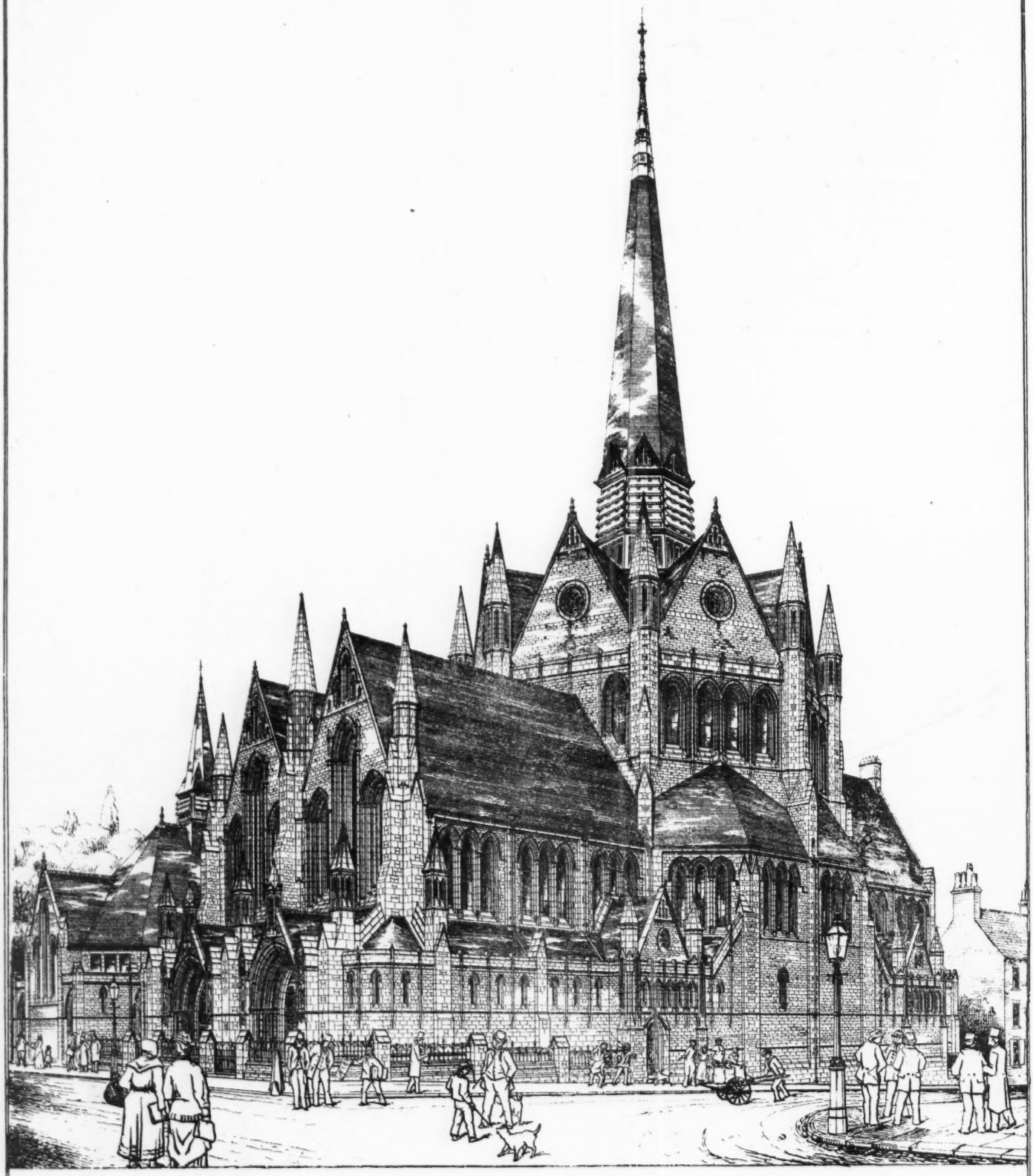
1st. The style is simple, the proportions good, and the detail free from needless elaboration; but the west end of the nave and tower are capable of improvement.

2nd. Is in many respects well worked out, and has some very good features. The western gable of the church is broad and dignified, and the east end and apse well proportioned.

3rd. These drawings are admirably executed, and the design shows consderable ingenuity and originality, is well studied throughout, and artistic in treatment.

The design by Messrs. Henman & Beddoe, now illustrated, is the one placed third by the assessor, but some of our correspondents seem to think the report is really more in favour of this than the other designs.

Signor de Fabris, Architect.—Signor de Fabris, the architect of the new front of the cathedral at Florence, died on the 28th ult. at Florence, on the eve of the day appointed for uncovering his great work.



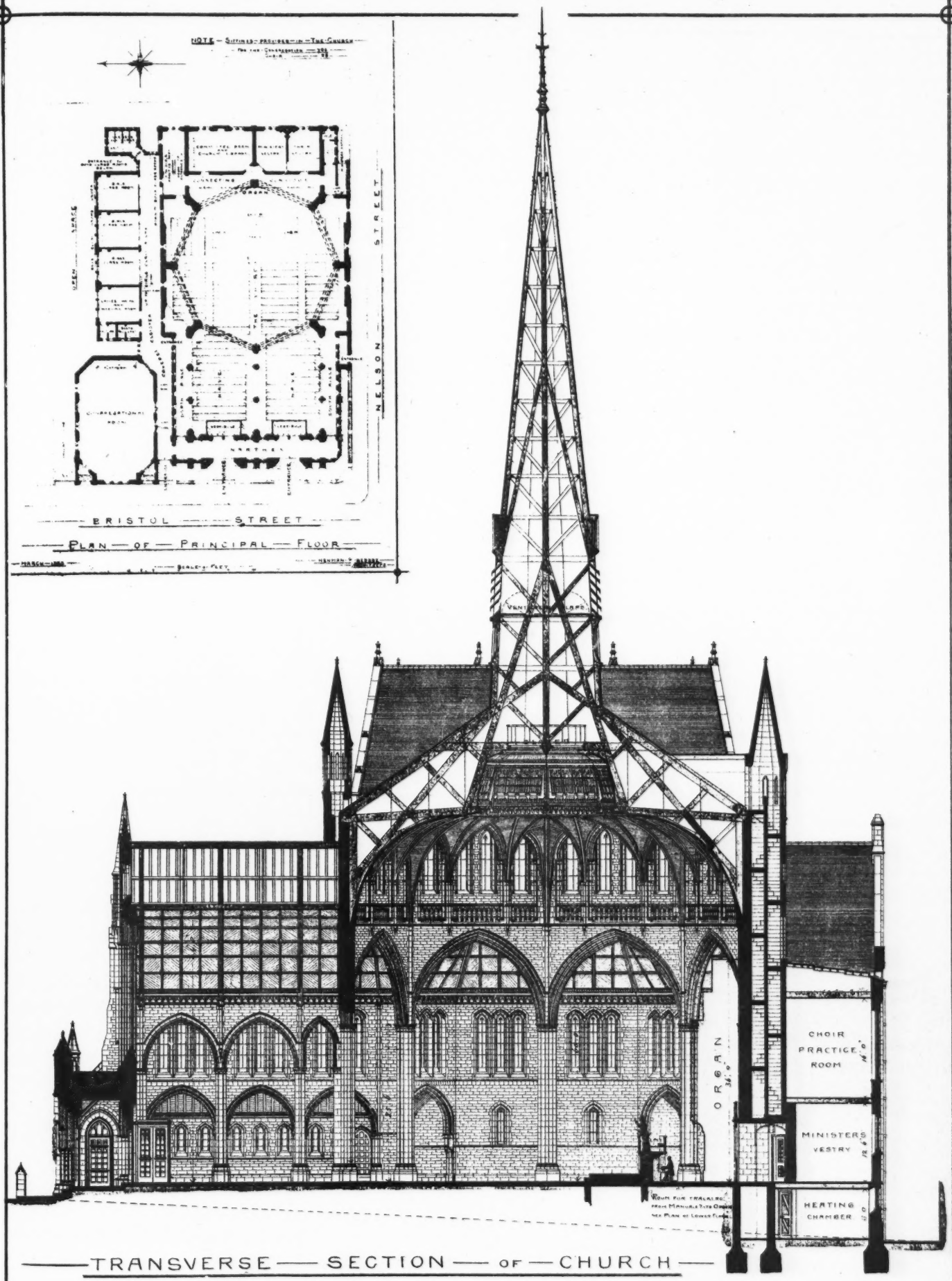
DESIGN FOR THE CHURCH, CONGREGATIONAL ROOM, &c., FOR THE OLD MEETING TRUST, BIRMINGHAM.

MESSRS. HENMAN & BEDDOE, ARCHITECTS.

C.F.Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, Gt Queen St.

PLAN OF PRINCIPAL FLOOR



TRANSVERSE SECTION OF CHURCH

DESIGN FOR THE CHURCH, CONGREGATIONAL ROOM, &c., FOR THE OLD MEETING TRUST, BIRMINGHAM.

MARCH – 1883

HENMAN & BEDDOE
ARCHITECTS
33 BENNETTS-HILL-BHAM.

SCALE OF FEET

C.F. Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, Gt Queen St

C.F.Kell, Photo-Litho. Castle St Holborn.

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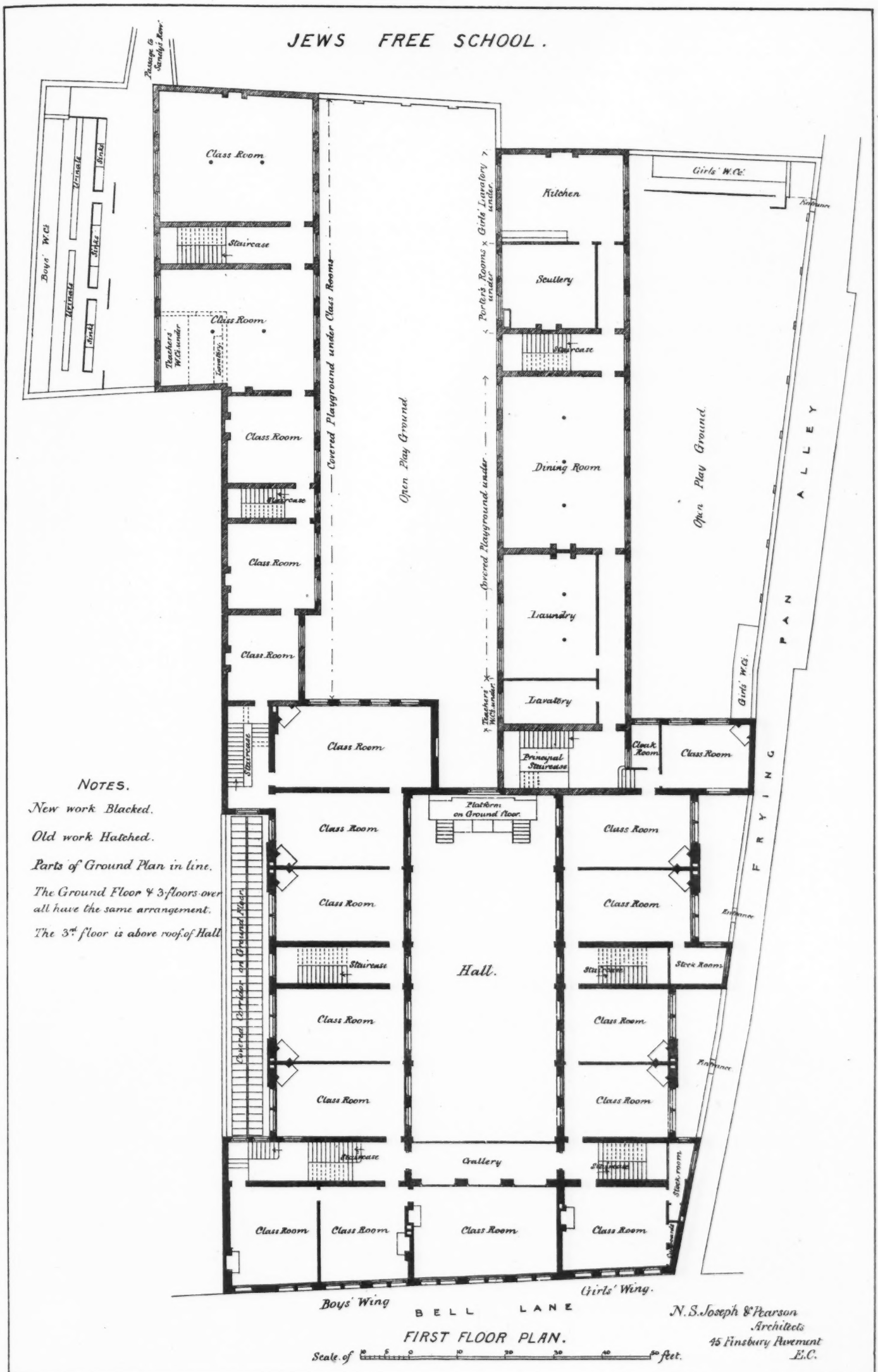
THE JEWS' FREE SCHOOL.——Messrs. Joseph & Pearson, Architects.

JEWS FREE SCHOOL.



NOTES.

New work Blacked.

Old work Hatched.

Parts of Ground Plan in line.

The Ground Floor & 3 floors over all have the same arrangement.

The 3rd floor is above roof of Hall

N. S. Joseph & Pearson
Architects
45 Finsbury Pavement
E.C.

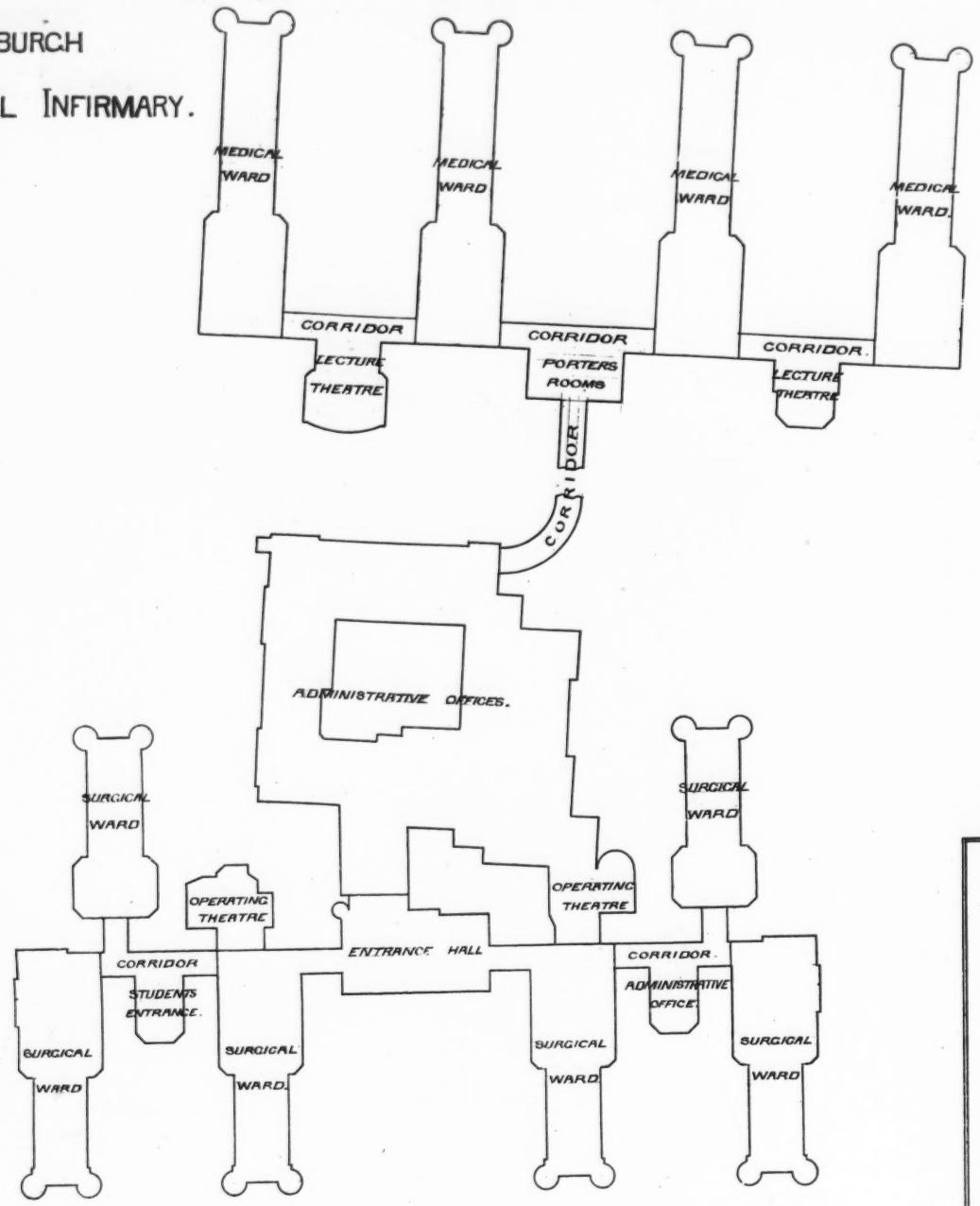
FIRST FLOOR PLAN.

Scale of 10 5 0 10 20 30 40 50 feet.

C.F.Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, G^t Queen S^t

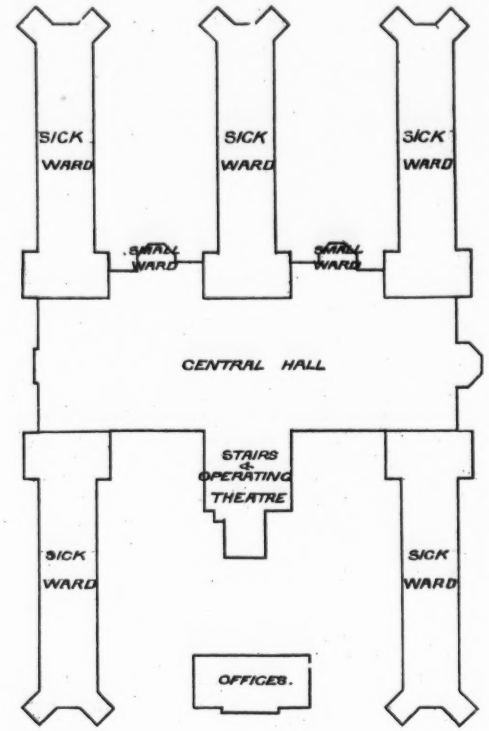
EDINBURCH ROYAL INFIRMARY.

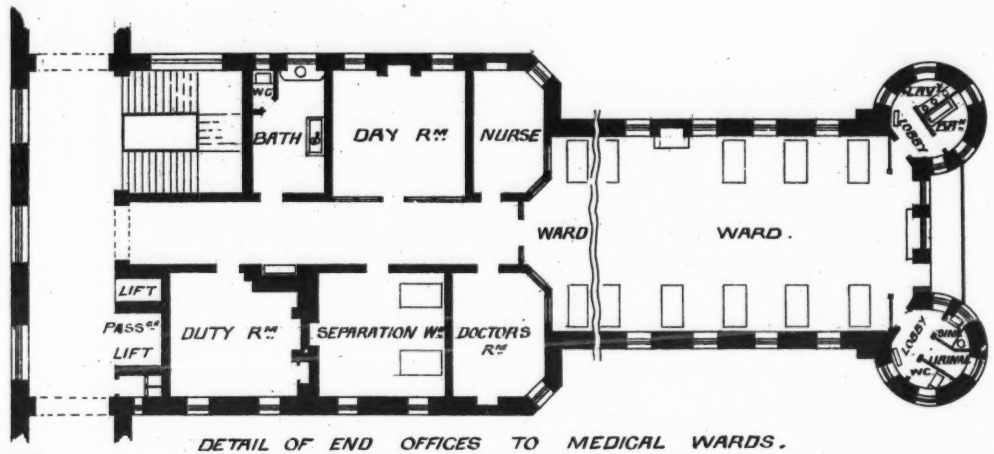


BLOCK PLAN.

LEEDS GENERAL INFIRMARY.

HOSPITAL PLANNING.

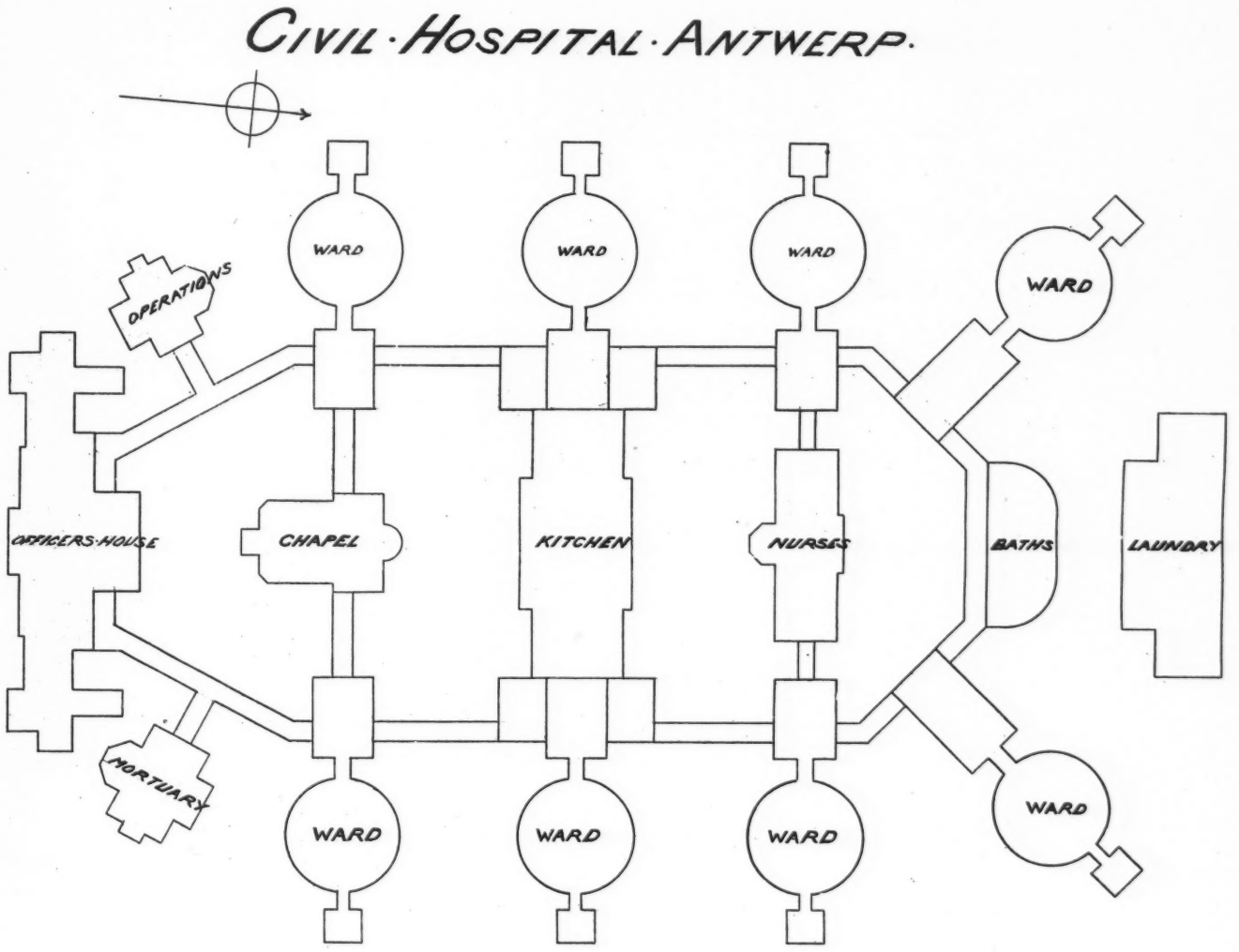


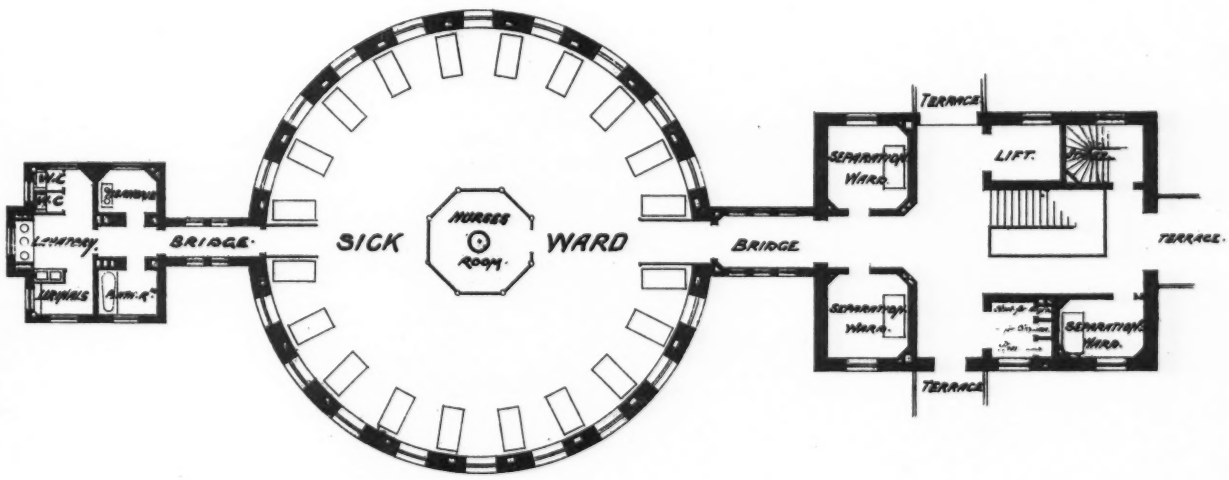


DETAIL OF END OFFICES TO MEDICAL WARDS.

Whiteman & Bass, *Photo-Litho* 236, High Holborn

Wyman & Sons, Printers, Gt Queen St.





Scale ½" = 1 ft. Ant. & Ward. Plan.

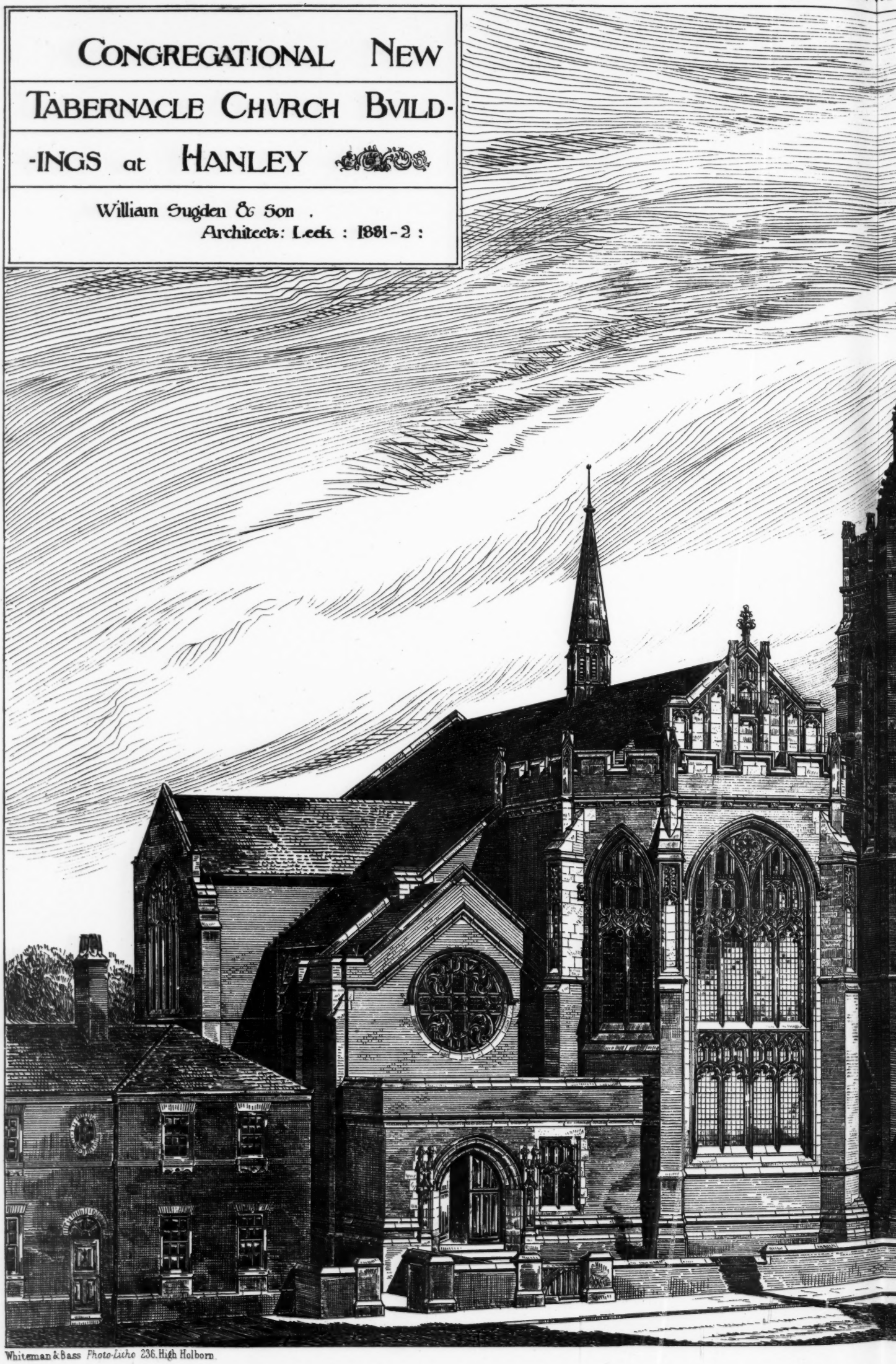
HOSPITAL PLANNING.

Whiteman & Bass, *Photo-Litho.* 236, High Holborn.

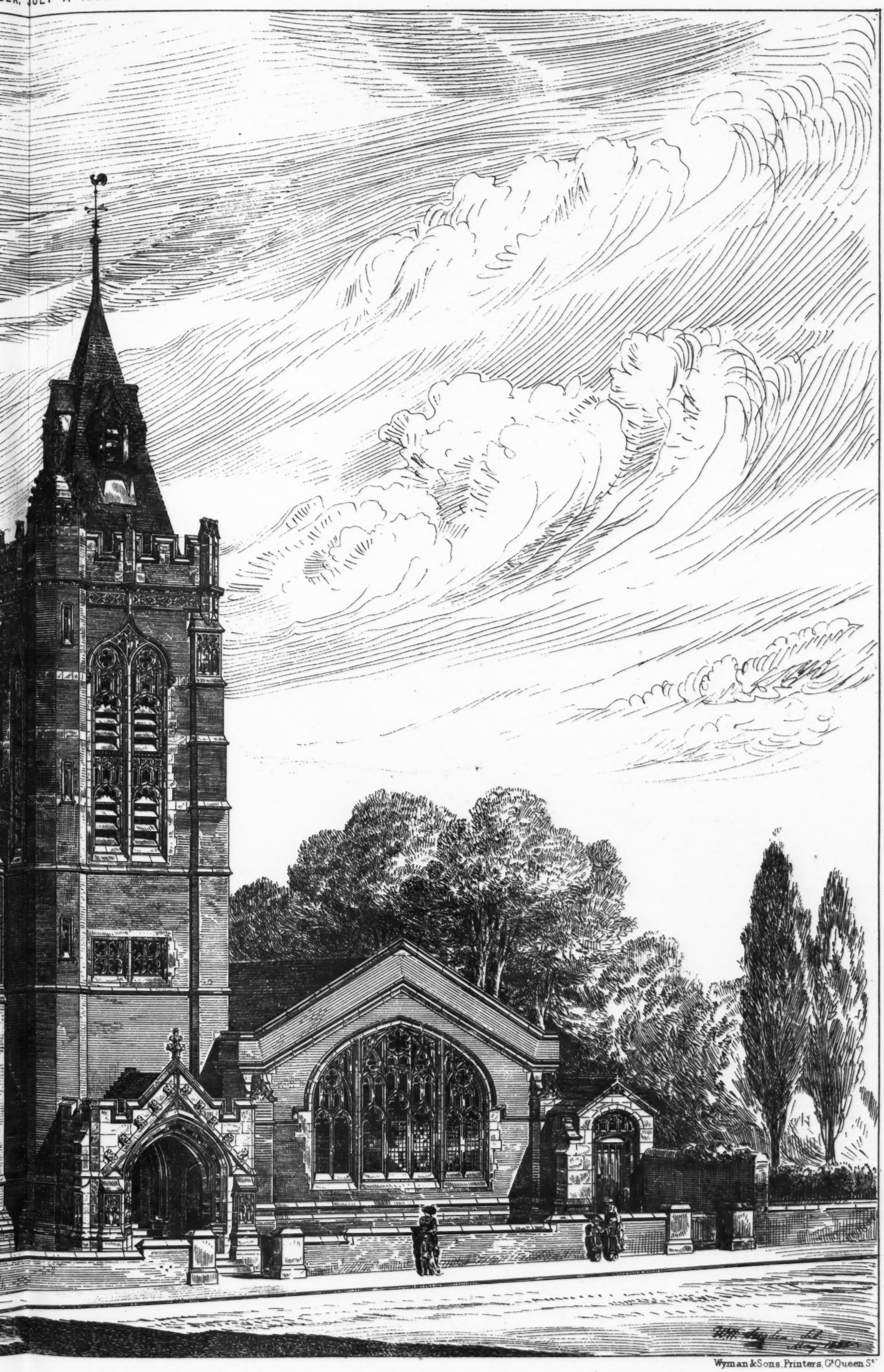
Wyman & Sons, Printers, Gt Queen St.

CONGREGATIONAL NEW TABERNACLE CHURCH BUILDINGS at HANLEY

William Sugden & Son, Architects: Leek: 1881-2:



Whiteman & Bass *Photo-Litho* 236. High Holborn.



Wyman & Sons, Printers, Gt Queen St.

HANLEY TABERNACLE CHURCH BUILDINGS.

THESE buildings were opened on the 24th ult. They have been erected from the designs and under the superintendence of Messrs. William Sugden & Son, architects, of Leek, whose plans were selected unanimously by the committee in a competition limited to Messrs. Sugden, Mr. John Sulman, London, and Mr. Ellison, of Liverpool.

The High-street façade has as its central feature a tower of considerable size, with octagonal domed stair turret, and with the belfry stage enriched by traceried openings of the noble proportions which we owe to the English builders of the fifteenth century. From the battlemented parapet of the tower rises a peaked tiled roof, with dormer gablets, to a height of about 150 ft. from the street. A stone spire was avoided owing to the nature of the ground, the neighbourhood being largely mined. To the right of the tower we have the gable of the lecture-hall, adorned by a traceried window of seven lights flanked by traceried buttresses. To the right of the lecture-hall gable is its entrance porch, forming also the girls' entrance to the school; and to the left, at the foot of the tower, is a spacious carved porch, the main entrance to the chapel. The front gable-end of the chapel, which lies just to the left of the tower, takes an octagonal apsidal form, and has a battlemented parapet in front of a gable panelled by tracery. This octagon has decorated angle buttresses, and a traceried window inserted in each face, that to the centre bay being about 30 ft. in height, and 12 ft. in width. The front is completed by a south porch, with a doorway and window with moulded and carved tracery, terminating by a parapet and leads under the gable of the south staircase, which is embellished by a large rose window. All the intricate stonework of the front is executed in red Hollington stone, except some of the more exposed parts, where the hard Roche stone (millstone grit) from the Leek district is used. The walls of this front are faced externally with specially-made local thin red bricks, and the roofs are covered with brown Broseley tiles. The tracery of the side windows, including the fine transept lights, is of red terra-cotta.

The following is a summary of the accommodation provided:—Chapel, with north and south transepts and galleries on three sides, containing 1,000 sittings, extreme length, including rostrum apse, 84 ft.; width, 48 ft.; width across transepts, 69 ft.: height in centre, 42 ft. Lecture-hall, containing 200 sittings: length, 43 ft.; width, 29 ft.; height, 23 ft. Organ-chambers to chapel and to lecture-hall. Tower and entrance porches and two main staircases, one descending to the school floor; narthex, 24 ft. long and 8 ft. wide, with double-swing glass doors. Entrance porch to lecture-hall and for girls' approach to school. Boys' porch and two porches for the class-rooms, minor staircase for minister and choir, minister's vestry, 16 ft. by 12 ft., with lavatory, &c.; deacons' vestry, 20 ft. by 12 ft.; large schoolroom, 55 ft. long, 44 ft. wide, 28 ft. high, with clerestory; library, 21 ft. by 17 ft.; infants' schoolroom, equal to about 33 ft. by 16 ft.; mothers' meeting-room, 20 ft. by 17 ft.; eight boys' class-rooms, each 12 ft. by 10 ft. 6 in.; five girls' class-rooms, each about 13 ft. by 9 ft. 6 in.; one young women's class-room, 25 ft. by 13 ft., and two smaller ones; young men's class-rooms, tea-room, scullery, heating apparatus, vaults, lavatories (separate for boys and girls), ample corridors, &c. Partly on account of the nature of the ground, the architects have discarded the single span roof, which in buildings of this width militates against permanency through its excessive strain both on itself and the supporting walls, and a very openly arcaded nave and aisle arrangement has been adopted in the chapel, the piers or uprights of which, being of moulded teak wood and widely spaced, do not impede sight, whilst distributing equally the load of the roof. The warming apparatus has been provided by Messrs. Haden & Son on the low-pressure hot-water system, and for ventilation, fresh air is admitted at numerous points through upright shafts, with filtering media for the arrest of fog and smoke. The foul air is drawn off by turrets on the ridges, and through the tower roof by means of special flues, whose air is rarified by fire-clay cones, heated to incandescence by gas jets. From some portion of the gas-fittings also the products of combustion are carried off direct, the waste heat being useful in the ventilation exhaust flues. Electric bells will probably be provided for general communication, and to call simultaneously together to the large school-room the occupants of the various class-rooms. One of the class-rooms is fitted up as a tea-room, with swing tables for service, and provided with gas boiler, &c., and hot and cold water is laid on in taps at points to meet fire emergency and to economise labour in cleaning the premises.

The gallery front is varied by being treated as a series of balconies between the teak pillars, with open tracery and linen-fold panels. The rostrum is of similar but more elaborate design, and has under it canopied seats for the officiating deacons; its situation in a domed apse, with high wainscoting, has favourable acoustic results. The organ-chamber, too, being carried clear through the gallery to a lofty height, adequate space is secured both for the instrument and for the issue of the "concourse of sweet sounds." In his report on Messrs. Sugden's plans, the architect-examiner of the Congregational Church Building Society, said:—"The reports under this society's regulations are for the simple purpose of friendly practical suggestion. They are not for criticism. If they were, it would be very pleasant for us to say much which a critic in justice ought to say of the complete planning and effective design and careful specification under examination." The secretary of this society added:—"I do not hesitate to pronounce the plans, as a whole, A1, containing minuteness of detail, great regard to practical convenience, good proportion, and real solid beauty."

The contractor for the erection of the buildings was Mr. Samuel Warburton, of Harpurhey, Manchester, and the result reflects great credit upon him. His sub-contractors were, for the terra-cotta work, Mr. Jabez Thompson, Northwich; for the carving, Messrs. Bonehill, Manchester; for the stained-glass work, Messrs. R. B. Edmundson & Son, of Manchester; and for the gasfittings, Messrs. Thomas Brawn & Co., of Birmingham. Mr. Thomas Heywood very efficiently discharged the onerous duties of general foreman of the works.

MODERN HOSPITAL CONSTRUCTION.

OF the series of special drawings prepared by Mr. E. C. Robins, in illustration of his paper on the above subject published in our last number, we have selected the Royal Infirmary, Edinburgh, and the Leeds General Infirmary on one page. Also the Antwerp Civil Hospital, with an enlarged plan of the circular sick wards of the same, on another, the particular description of which will be found on p. 877, vol. xliv.

WEST HARTLEPOOL AND ITS PUBLIC PARK.

THE opening of the new public park at West Hartlepool directs attention to the upgrowth of that young and thriving town, which occupies a situation that was, thirty-five years ago, barren shores, bleak agricultural lands, and sandy dunes. Two miles to the north-east was the ancient town of Hartlepool, that, after centuries of sleep had been awoke by the construction of a railway from the adjacent coal-field, and was a busy little coal shipping and fishing port. But the facilities for shipment at that port were not large, and misunderstandings arose as to the charges for the use of these facilities. In the year 1844 a Bill for constructing the "West Harbour and Dock" was passed, and in the spring of the following year the construction of that dock and works commenced in the township and parish of Stranton, then an agricultural parish, with a population in the township of 381, and described in one of the best gazetteers of the time as "inconsiderable." On the 16th of June, 1847, the "Hartlepool West Harbour and Docks" were opened, the harbour being thirteen acres, and the dock eight more; and in the same year the company owning them obtained powers to construct other docks. A railway had been made previously,—the Stockton and Hartlepool Railway, used for the conveyance of coal first in 1840, and for passengers in 1841, and incorporated by Act of the following year. It leased the Clarence Railway,—one of the earliest in Durham,—and so obtained access to the coal-field; and finally it and the Dock Company amalgamated in 1851. It is from this latter date that the history of West Hartlepool and the growth of its trade commences. In 1852 a second and larger dock was opened; a third followed in the same decade. Continuous additions to the timber ponds were needful, and finally, a year ago, a splendid addition to the docks united the new and the old port, and gave a deep-water dock system that is unequalled north of Hull. Before that time the West Hartlepool Harbour and Railway Company had ceased to exist. Its capital had exceeded Parliamentary limits, and after prolonged litigation it passed into the ownership of the North-Eastern Railway, which has acquired a monopoly of the service,—with the exception of five or six miles,—of the whole of Northumberland and Durham; and not the least valuable of the territory it has acquired is that of the great port which was built up by labours of no little difficulty.

The trade of West Hartlepool was first coal exporting; then imports and now manufactures and shipbuilding have been added. The coal shipments began with the opening of the first dock, with 54,000 tons in the year 1847, rising and falling with the state of the local consumption and other causes, and amounting to, for last year, about one million tons. As the system of railways became perfected, and as the facilities of the port and its splendid warehouses became known, the value of the merchandise exported rose,—from 23,846*l.* for the first year of that export, 1853, — to about 1,250,000*l.* yearly now on the average of recent years. In the import trades, timber, grain, cattle, and general goods, begun thirty years ago, have been wonderfully developed, and now lines of steamers to Hamburg, Sweden, New York, and Boston contribute largely to the trade. In 1854 shipbuilding was begun, under the olden wooden style, gradually changing to iron, and now the largest of the three firms of shipbuilders at West Hartlepool occupies second or third rank from year to year in the tonnage roll of the builders of the kingdom, and the port contributes from thirty-five to forty-five steamers to the merchant navy of the kingdom. Its three blast-furnaces melt a considerable quantity of pig-iron; rolling-mills adjacent manufacture this into plates for the ship-yards; and one by one there have grown up a mass of industries that have created and developed a town.

The population rose from the three hundred we have stated to 4,700 in 1851, to 13,600 in 1861, to 22,000 in 1871; and now it is estimated at 33,000. Three churches and about a score of chapels have been erected and freed from debt; schools and institutes have been built, and slowly other than the bodily needs of the town have been cared for. One of these is that just completed, and now devoted to the public use, — the Ward-Jackson Memorial Park, a park of seventeen acres bought as a memorial to Mr. Ralph Ward-Jackson. To this gentleman much of the development of West Hartlepool is due. He was one of the firm of solicitors who projected the Stockton and Hartlepool Railway to "afford to the numerous and valuable collieries in the south-western districts of the county of Durham a cheaper, safer, and more expeditious means of export" than they possessed when the prospectus of that railway was issued. He was the projector of the first docks; and of the West Hartlepool Harbour and Railway it has been truly said that, down to twenty years ago, he "took upon himself the management of the company," and "all the offices,—directors', solicitors', secretary's, treasurer's, engineer's,—in fact everything connected with the company vested in him." He enlarged the harbour, built other docks, bought collieries, built vast warehouses, opened communication with great manufacturing districts, and in the face of a strenuous opposition created a vast trade that has not been since cared for as he cared for it. Twenty years ago, it was shown that the Parliamentary powers of what may be called Mr. Jackson's company, were largely exceeded,—the 60,000*l.* of the old Stockton and Darlington Railway were swollen into millions spent in building up a port, but millions for which no Parliamentary powers were possessed. The company passed into difficulties, the directors retired, and the ownership of the port passed into other hands. But West Hartlepool was not ungrateful to its developer. It had given him all the local honours it could; and when, in the year 1867, the Reform Bill recognised the growth of the great South Durham port, and created "The Hartlepools" a distinct Parliamentary constituency, the borough returned as

its first member Mr. Ralph Ward-Jackson, though after-elections have proved that his politics were not those of the bulk of the electors. And when death took him from commercial conflict, victory, and defeat, the town-people decided that a public park should be a memorial of him, and thus near where the town of his love "is swinging its clamorous iron flail," there will be the memorial to all time of the labours of the chief builder of the port and town of West Hartlepool.

THE GREAT FIRE AT AIX-LA-CHAPELLE.

THE destructive fire which broke out in the afternoon of Friday, June 29th, at Aachen,—why this essentially German town should go by the name of Aix-la-Chapelle is a mystery to us,—has resulted in the partial destruction of a venerable relic of the past; another equally ancient building, the neighbouring cathedral, being only saved by the extraordinary exertions of the local fire-brigade. As it is, the loss,—not to reckon the destruction of private property,—has been quite serious enough, for the two towers, the eastern and western, of the Rathhaus or town-hall have been entirely burned out. Still, when it is considered that the fire broke out in a chemical manufactory, full of highly combustible materials, belonging to the Messrs. Monheim, which, for some unexplained reason, had been permitted to be established in a crowded neighbourhood and in close proximity (1,000 yards) to two such venerable piles, matters might have been still worse. Aachen, at least its older portion, is very closely built, and it is, therefore, no wonder that the conflagration found ample food in the neighbouring roofs, rendered inflammable by the previous great heat, whence it was communicated by fragments of burning paper saturated with benzine, driven by the prevailing east wind, first to the eastern tower of the town-hall (the Granusthurm). Tradition dates this old tower back to the time of the Emperor Nero, one of whose brothers, whose name is unknown to history, is said to have been the builder; but its erection is placed more correctly by archæologists in the first decennium of the thirteenth century. No wonder the Aacheners trembled for their old Rathhaus, as dear to them as the Tower or Westminster Abbey is to Londoners. An eye-witness describes the scene as thrilling. "Shoulder on shoulder," he says, "they stood awe-struck by the spectacle enacted before them. Every true Aachen breast trembled for the treasures of the town-hall, that splendid building, dating from the most glorious period of German history. Here a Merovingian castle stood once; here the great Charles, whom French and Germans alike claim as their own, erected his palace. Here in the old Kaisersaal a long series of German emperors during the Middle Ages placed the German crown on their heads with their own hands. A cry of anguish arose when also the western tower was seized by the flames. . . . . The Granus tower had burned for twenty-five minutes only when it inclined, and went down with a great crash upon the neighbouring roofs. The western tower, on the contrary, collapsed. But here, in the so-called Stadtthurm, two brave fellows of the Aachen fire-brigade boldly kept their post, notwithstanding the fiery furnace below and around them, and the burning timbers falling on all sides; and, by directing the hose upon threatened spots, saved the remainder of the Rathhaus." Fortunately, the old vaults of the Kaisersaal, this pearl of Aachen, resisted the fire. It was only through an opening in the crown of the arch that burning masses of wood fell into the hall below, and threatened destruction to the frescos of Rethel and Kehren. But, excepting slight damage by water and a few cracks, no serious injury was done. The celebrated picture of Charles the Great was saved by timely removal into the vaulted basement below.

While the fire was still raging around the town-hall, the manuscripts and records and vaults and tower walls of which, however, were preserved, all eyes were involuntarily and anxiously turned in another direction. Fears were entertained that the flames would seize upon another pile round which the name of the great Charles has shed a halo. It was for some time a question whether the cathedral would escape unhurt, or whether this treasury of national glories would be sacrificed. But, thanks also to the almost superhuman exertions of the local fire brigade, which, no doubt, will have due recognition, the venerable building was saved by keeping its roofs, and especially Charles's Chapel, almost covered with water. Although these two national relics were preserved for future generations of archæologists, the damage done to private property has been very great, for twenty-five houses have been either totally or partially destroyed. The cause of the fire is at present unknown, but it is stated that it arose from spontaneous combustion in the roof of the chemical factory, where large quantities of benzine were stored.

BERLIN.

FOR the past few years Berlin has been increasing her population at the rate of about 40,000 annually,—a number which, if kept up, will bring the inhabitants of the German capital up to 2,000,000 by the end of the present century. The population of Berlin at the present time is in round numbers 1,250,000. Since the period of the crash, following on the mad speculation of 1872 and 1873, house-building in Berlin has been carried on only within moderate and safe proportions. For some years after 1874 rents fell, but as there was no interruption in the constant increase of the population of the city, dwellings at length became very crowded and the demand for new houses again became urgent. For many months past accordingly the building trades of the city have been very active. An unusual number of houses have been erected and have let without difficulty. At the present moment there is greater activity in house-building in Berlin than has ever been known.

The value of ground in that city is so great that builders have constantly been tempted to diminish the size of court-yards and to increase the number of dwellings at the back as much as possible. Owing to this and other abuses which have crept up, the Municipal Authorities have co-operated with the Chief of the Police in drawing up an amended code of regulations controlling all buildings and building operations in the German capital. The rules are, however, not to be issued or put in force until next year. Among the new regulations is one providing that all basement dwelling-rooms must be not less than two-thirds above the level of the ground. Carpenters' and other workshops are henceforth to be limited to separate buildings. In regard to fire-proof staircases the present rule is that every dwelling must be accessible from one fire-proof staircase. In future the regulation will be that every floor above the second must have two fire-proof flights of stairs. This provision is only just and necessary when we consider the shape and size of the average dwelling-houses of Berlin. They are built in the form of a hollow square, round the narrow and contracted court-yard in the centre, and the average number of persons resident in a single house is from fifty to sixty. Under the new rules, again, the minimum dimensions of the court-yard are to be sixty square mètres, the minimum breadth being five mètres. Smaller courts are only to be permitted in the case of corner houses. With regard to the height of houses, the maximum height to be permitted in future is 24 mètres, and there are to be no more than five floors let out as dwellings in any house. At present houses are being built over 27 mètres high, and with seven and eight stories. Altogether the new regulations appear only what are reasonable and absolutely necessary for the health of a dense and growing population like that of the capital on the Spree. Another improvement long keenly wanted in Berlin appears likely shortly to be supplied. This will be by the erection of one or more extensive market-halls. Berlin has hitherto been without any such sheltered convenience in spite of the intense inclemency of the weather in the winter season. The Corporation has just purchased a suitable site in a very central district, including parts of Zimmer Strasse and Mauer Strasse with excellent approaches, and the erection of the new buildings is to be begun in the course of next spring at the latest.

Appointment of Borough Engineer for Cardiff.—Mr. Harpur, formerly assistant engineer to the borough, has been appointed by the Cardiff Town Council Borough Engineer, at a salary of 400*l.* a year.

MONUMENTS.

The Niederwald Monument.—The colossal figure of Germania, which has been cast in parts at Munich and Dresden, is now being erected on its intended resting-place in the Niederwald, overlooking the Rhine. The figure is designed to commemorate the German victories over the French in 1870 and 1871, and is a metaphorical embodiment of the popular German idea of the Watch on the Rhine. The German Emperor, who has arranged to attend the military manœuvres of part of his army in Hesse Nassau towards the end of September, has consented to inaugurate the monument on the 27th of that month. The occasion will undoubtedly be one of a very memorable character, as all the reigning princes of Germany have been invited to attend the ceremony, and few of them will care to be absent at such a demonstration. After the event, the Emperor and his princely guests will return to Wiesbaden, where in the latter portion of the day a banquet, and a ball will continue, and wind up the festival.

New York.—Statue of Liberty.—The French are making the Americans a present of a colossal statue of Liberty, which stands 150 ft. high. It is to be erected at the entrance to the harbour of New York, and to serve the purpose of a lighthouse. In height it completely dwarfs the Colossus of Rhodes, of ancient celebrity, the latter having been only 105 ft. high. The new lighthouse statue of Liberty is to be illuminated with the electric light. It is to be set up on a pedestal, itself 148 ft. high, and it is with regard to this matter that formidable difficulties have arisen. How is the statue to be lifted and placed in position at that height? As the French have not provided the necessary funds for the pedestal, a subscription is being got up in America for the purpose; but the chief difficulty will still remain, how to place the statue in position. An American engineer, Mr. Goodridge, proposes to envelop the statue in an iron cage and, as has been done with houses and hotels, to lift it up and build in the masonry underneath, constantly raising the Colossus and adding to the masonry until the desired height has been attained. To prevent the danger of the statue being blown over by a storm, it is proposed nearly to fill in the lower parts with masonry.

Mozart Monument, Vienna.—By the 16th of the past month the subscription which has been opened for the erection of a monument to Mozart, amounted to 48,584 florins, or rather more than 4,048*l.* sterling.

Rome.—Monument to Semper.—A simple monument, erected in the Protestant cemetery at Rome, to the celebrated German architect, Gottfried Semper, was inaugurated on the 9th ult., in the presence of the German ambassador, Prince Thurn and Taxis, and a large and distinguished assembly of Italian and foreign artists. The monument was almost covered with wreaths of laurel, immortelles, and spring flowers, which had been sent not only by Roman, but by many German, Austrian, and Swiss admirers of the deceased. The ceremony was of the simplest character, and concluded with the handing of the monument over to the protection of the German ambassador.

FOREIGN NOTES.

Prussian Medals for Services to the National Architecture.—In the year 1881 the Prussian Government determined to found three annual medals to be awarded, one to the architect, another to the architectural engineer, and the third to the mechanical engineer, who should be adjudged to have performed the greatest services within the twelve months to the general cause of architecture in the country. The first distribution of these medals has just taken place, and the Gold Medal has been awarded to his Excellency, Dr. Hagen, and the two Silver Medals to Professor Ende, of Berlin, and Herr Wöhler, of Strassburg.

Museum of Trade at Dusseldorf.—The surplus obtained from the Dusseldorf Exhibition in 1880 was so considerable that it has been sufficient to found a permanent Museum of Industry in the city in question. The new Institution was opened on the 9th ult. By this Museum Dusseldorf, which already possessed a renowned School of Painting and a new and flourishing School of Industrial Art has become more than ever the capital of art in the Rhenish provinces.

THE ARTISTS' BENEVOLENT FUND.

ANNIVERSARY DINNER.

THE seventy-fourth anniversary dinner of this Fund was held on Wednesday evening last, the Right Hon. Lord Thurlow in the chair. The usual loyal and patriotic toasts were proposed by the Chairman, who adverted to the fact that her Majesty the Queen had for the forty-fourth time graciously sent her annual donation of 100 guineas to the Fund. The Chairman also referred to the interest taken in art by other members of the royal family, some of whom were not only patrons of artists but artists themselves. Captain C. B. Dimond responded for the "Reserve Forces" in a brief, soldier-like speech.

In proposing the toast of the evening, "Prosperity to the Artists' Benevolent Fund," the Chairman observed that in looking through the artistic little red book which was presented to each lady and gentleman attending the dinner, and which was not only a *souvenir* of the occasion but a record of the work which had been done by the Fund, he felt some diffidence in occupying the chair, which had been filled in former years by so many distinguished men, to none of whom did he yield, however, in the great interest which he felt in the welfare of the Fund. He had derived so much solace, in the course of a somewhat nomadic existence, from the works of artists, that nothing could render him callous to the sufferings and wants of artists in the present day, when the struggle for existence was much harder than it used to be. There was no doubt whatever that the great increase in the number of artists which had taken place during the past few years had very greatly increased the demands made upon the Fund, and added to the labours of the gentlemen who administered it. There was one consolatory reflection, however, and that was that if the number of artists had increased of late years, the number of those who bought and appreciated the artists' productions had largely increased also, and there was, too, an increasing demand for artistic designs for carpets, furniture, and other household requisites or adornments. But unfortunately little or nothing of an artistic character was to be found in the houses of the poorer classes, not because an artistic object was necessarily expensive, but because large masses of the people had no opportunities of contemplating and learning to appreciate works of art. He was one of those who had striven for years, and who intended yet to strive, for the attainment of what he believed would be a very great boon to the people, viz., the opening of our national art galleries and museums on Sunday afternoons, in order that the toiling poor might receive pleasure and instruction from the contemplation of works which they could never otherwise see. He was very glad to say that there was a great and growing feeling in favour of the movement, both in and out of Parliament, and he felt that the attainment of the end in view was only a question of time, and of a very short time. It was outrageous that this boon, which was so urgently needed in London (owing to its enormous population, and to its great size, rendering it impossible for people living in the more central portions to reach the country within a walk of reasonable limits), was still denied to the capital, though it was enjoyed and appreciated in such towns as Leeds, Middlesbrough, Birmingham, Manchester, Glasgow, Dublin, and many other large towns in the United Kingdom. In conclusion, his lordship referred with satisfaction to the financial prosperity of the Artists' Annuity Fund, which was a commendable effort on the part of artists themselves to provide for their own and their families' necessities in times of misfortune without appealing to the hand of charity. But his appeal was on behalf of the Benevolent Fund, upon which, for the reason he had already given, there were increasing demands. With the toast he had much pleasure in associating the name of Mr. John Absolon, a member of the committee.

Mr. Absolon responded, making feeling allusion to the loss which the Fund had sustained by the death of its late honorary secretary, Mr. C. J. Dimond. The blow which they had received was a heavy one, but he was pleased to say that they had, in the person of Mr. C. B. Dimond, a new honorary secretary who gave evidence of being a worthy successor to his father and grandfather. Referring to the Annuity Fund, Mr. Absolon cited one or two instances showing the benefits which had been received by the families of artists who had been members of it, and he urged young artists to come forward and join it in greater numbers than they did.

Mr. Lambton Young, the secretary, announced subscriptions and donations amounting to upwards of 500*l*., including the Queen's annual donation of one hundred guineas.

The remaining toasts included the following:—"The Chairman," proposed by Mr. Juland Danvers; "The Royal Academy," proposed by the Chairman, and responded to by Mr. C. B. Birch, A.R.A., who good-humouredly referred to the comparative neglect which the Artists' Benevolent Fund experienced at the hands of the Academy; "The Artists' Annuity Fund," tersely proposed by Professor Kerr (who pointed out that this Annuity Fund is raised and wholly supported by the contributions of its members for their own relief in sickness or old age,* and that it neither asks for nor receives any help from the public) and responded to by Mr. Thomas H. Maguire in a brief but interesting speech; "The Societies connected with the Fine Arts," proposed by Mr. Forbes Robertson, and spoken to by the Rev. Lawford Dale; and "The Stewards," proposed by the Chairman and coupled with the name of Mr. G. M. Atkinson.

BRISTOL AND CLIFTON JUNIOR ARCHITECTS' SOCIETY.

OPENING DAY.

THIS young and useful society celebrated its opening day on Saturday, St. Mary's Church, Bitton, being visited by the members. Upon arriving at the church, the venerable rector (the Rev. H. N. Ellacombe, M.A.) met the party, and conducted them over the sacred edifice, pointing out its many interesting architectural features. Mr. Ellacombe expressed his belief that, with many others, St. Mary's was a very large and long pre-Norman church. He pointed out the remains of two Norman windows on the northern side of the building, and said there was no doubt that at one time an immense pre-Norman church, for the foundations had been found a few feet below the present nave. He drew the party's attention to the fact that the chancel was a small one for so large a church, and added that above the present arch were the remains of an old Norman arch. There was a beautiful chantry on the north side of the church, built in the year 1299. He was certain of that date, because he had the key of the consecration. The window in the chancel was the exact type of one in St. Mary Redcliff Church, Bristol. Some twenty years ago it was found necessary to put a new roof to the church, and he therefore adopted a form of roof which was very uncommon in this country. About the same number of years since the church was re-seated, and the whole work was done by the parishioners; for he designed the seats, a native of the village carved them, and a native carpenter set them up. The visitors then proceeded to the outside of the church, where Mr. Ellacombe pointed out the beautiful way in which the tower was constructed, and stated that it was designed in the fourteenth century.

Mr. J. C. Moncrieff proposed, and Mr. S. E. Ford seconded, a vote of thanks to the guide for the kind manner in which he had received them.

The motion was passed, and the rev. gentleman acknowledged the compliment and said he was very pleased to see the party there that day.

The members of the Society who were dispersed for the purpose of sketching the sacred edifice, returned to Bristol by an evening train.

The Council of the Society have arranged a capital programme for the coming season, the buildings to be inspected being St. Peter's Church, the Old Mint, Temple Church, St. James's Church, and Redland Park Chapel, all in Bristol, while the country visits include, Bitton, Bath, Backwell, Nailsea, Wraxall, Cadbury, and Portbury. It has also been decided that the annual excursion this year shall take the form of a day's trip, by break, through a part of Somersetshire. The Society, which is doing a good work, seems to be following the course pursued by the Bristol Society of Architects, which existed some fifteen years ago.

* We may add that "all artists in Painting, Sculpture, Architecture, and Engraving are eligible to become members."

IGNORANCE OF THE BEAUTY OF NATURE AND ITS RESULTS.

THIS is the subject of a letter addressed by Mr. T. C. Horsfall, treasurer of the Manchester Art Museum, to the Manchester papers, pleading for help and sympathy in the work which the Committee of the Museum have undertaken. Mr. Horsfall writes:—

"Every one who knows what a large English town is like must also know that a great many of the people who live in it can have little familiarity with nature; but probably few persons are aware that an almost complete ignorance of nature is common amongst young people in the most crowded parts of our towns. Mr. H. E. Oakeley, Her Majesty's Inspector of Schools, told me not long ago that he has often found that children in places like Ancoats and Bradford scarcely know what a flower is, and have seldom, if ever, seen a primrose or violet, and that he once found in a school in Ancoats that a whole class had no idea what a bee is like or where it is to be found. Much evidence of the same kind has been given me by other observers. Such ignorance cannot fail to have very evil results. Of those persons who live in the country or spend some time there comparatively few seem to have much knowledge or love of nature; but, in fact, knowledge of it plays a very important part in the life of almost all of them. Taken as a class, perhaps the level of their thought, feeling, and conduct is not very high, but no member of the class who thinks about his own life will doubt that the level would be very much lower if the class were deprived of the 'admiration, hope, and love,' which it gains through the knowledge of the beauty of nature. Whoever admits this will also admit that the non-existence in many townpeople of feeling and thought gained from knowledge of beauty would keep their life at a low level even if the place remained empty in them which is filled in other people by the results of the knowledge of nature. When one remembers that the place cannot be empty, but must be filled by thoughts and feelings springing indirectly from their surroundings as our thoughts and feelings do from our surroundings,—when one remembers this and remembers also what are the surroundings in Ancoats and Bradford of the children who hardly know what a flower is, one must feel that this ignorance of natural beauty must have almost insuperable power to keep their life at a very low level indeed. Modes of thought and feeling gained in childhood are so persistent, so hard to change, that it may be taken for granted that if familiarity with the beauty of nature is to prevent the existence of a life-long low level of thought and feeling, it must be gained in childhood. Only by help of our school system is it possible to make means of gaining some measure of familiarity with natural beauty reach the majority of children. The people in towns who are most ignorant of nature may be divided into two classes,—those who never or very rarely see beautiful natural objects, but could see them sometimes, either in the country nearest to the town where they live or in town parks, if they wished to do so; and those who sometimes see beautiful natural objects, but have eyes and minds so untrained for the perception of beauty that they hardly notice them. A passage in Mr. Browning's 'Fra Lippo Lippi' indicates the means which will be most useful for helping people of both these classes:—

> 'We're made so that we love
> First when we see them painted, things we have pass'd
> Perhaps a hundred times nor cared to see;
> And so they are better, painted,—better to us,
> Which is the same thing. Art was given for that,—
> God uses us to help each other so,
> Sending our minds out.'

The committee of the Manchester Art Museum are working on that principle. They know that if a few good pictures of the beautiful things which are found near every town, of the commonest wild and garden flowers, of common kinds of trees, birds, butterflies, of the simplest country scenes, lanes, fields, woods, be placed in schools, and the scholars be induced to notice them and feel something of their beauty, and to learn the names of, and gain ever so little knowledge about the things represented in the

pictures, the knowledge and feeling thus gained are not only sure to be added to whenever the children see beautiful things in the country and town parks, but will also give some of the scholars, both while and after they are children, motives for trying to see such things, and for trying to alter the conditions which now make the existence of such things in our towns impossible. The collections of works of art, which the committee are going to lend to schools in Manchester and Salford, will contain many other kinds of art; but they must contain good representations of the beautiful common objects which I have mentioned. Representations of such objects of a kind suitable for use in schools,—that is, of considerable size, and excellent in respect both of truth to nature and artistic quality,—are at present hard to get. No pictures of trees, except costly original drawings, are obtainable, and suitable pictures of other natural objects are very expensive. The action which Mr. Mundella promised that the Science and Art Department shall take will soon create a supply of the kind of pictures we need, but even when a supply exists, they will, of course, not be of any use to us unless we can buy them. At present we have so much other work to do in connexion with the art museum, all of which is as necessary as our school work, that we cannot afford to spend as much money on our school collections as is needed for them. We have received about 2,800*l.* in money, and gifts of works of art worth about 4,000*l.*, and we have annual subscriptions of 100*l.* promised for four years. We need at least 5,000*l.* more, and an annual income of 500*l.* for four years. The Earl of Derby and the Earl of Wilton have both promised to help us if we receive a fair amount of local support. We need, besides money, the help of persons willing to take part in the pleasant work of giving explanations of pictures and art processes in schools and in the Queen's Park Gallery when it is finished."

ARCHITECTURE AT UNIVERSITY COLLEGE, LONDON.

THE following are the results of the examination of students in the Architectural Classes, 1883, under Professor T. Roger Smith:—

Fine Art Class.—Donaldson Silver Medal, H. H. Mew; prize of books, W. E. Potts; first-class certificate,* E. W. Knight; second-class certificates, H. Berney, A. T. Bolton, T. Leadbitter, S. H. Seager, R. H. Weymouth; third-class certificates, T. D. Atkinson, A. M. Buller, J. A. Minty, A. C. Wood, F. Taylor.

Construction Class.—Donaldson Silver Medal, H. Berney; prize of books, E. L. Conder: first-class certificate,* H. C. Harston, H. M. Buller; second-class certificate, H. S. Flower, T. Leadbitter, S. H. Seager, H. C. Wood; third-class certificate, E. Boardman, S. Clarke, J. A. Minty, J. F. O'Connor, W. H. Raffles, R. H. Weymouth.

Modern Practice Class.—Prize, T. Leadbitter; first-class certificate,* H. Berney, S. H. Seager; second-class certificate, F. Massie, J. A. Minty; third-class certificate, C. H. Aitken, T. D. Atkinson, E. T. Boardman.

GATESHEAD HIGH SCHOOL FOR BOYS.

THE building known as the "High School for Boys" was opened last week. The building stands on a site of seven acres, sloping to the south and west, with a sunny aspect, and overlooking Ravensworth Vale. On entering the gateway the visitor is attracted by a porter's lodge. After walking a short distance the school is reached. It is built of red brick with stone dressings in the Tudor style, with diapered slate roof. At a prominent corner of the building stands out in bold relief a massive tower, in which it is proposed to place a large illuminated clock. Underneath is an observatory, which not only commands a beautiful view of the surrounding country, but will also be suitable for the instruction of the youths in the study of astronomy. The interior of the building is thus arranged:—There are six class-rooms, each of which is arranged for the use of thirty boys. Then there is a class-room for sixty boys; next a large chemical laboratory for the use of a number of students. In the centre of the building is a large assemblage-hall, capable of seating between 300 and 400 people, and a dining-hall for youths attending the school from a distance. Not far apart are the private rooms for the head and under masters, the library, and a room for conversation. Underneath are capacious kitchens and sculleries. In each of the rooms are open fireplaces, and they are lighted in such a manner as to cause the light to fall on the left-hand side of the occupants. Besides this, arrangements are made for maintaining an equable temperature throughout the building by means of hot-water pipes. At the back part of the premises there is a cricket-field and lawn-tennis ground, and completely surrounding the field is a bicycle track. The head-master, the Rev. Thomas Adams, intends, we understand, to erect a house for the accommodation of a large number of boarders, on the Eton principle. It is also intended to build a large gymnasium, a cricket pavilion, and workshops, in which pupils will be taught carving, joiner-work, and other trades, the idea being that each boy shall learn some handicraft, in addition to a first-class education.

Messrs. Oliver & Leeson, of Newcastle, are the architects; Mr. J. S. Millar, the contractor; and Mr. David Lindsay, the clerk of the works.

* With marks sufficient to qualify for a prize.

VALUE OF BUILDING LAND AT HENDON.

ON Tuesday evening Mr. Richard J. Collier submitted for sale, at the Old Welsh Harp Hotel, Hendon, a number of building plots on a property called the Upper Welsh Harp Estate, situated on high ground, with a commanding view of Harrow and the surrounding neighbourhood, the expansive sheet of lake water at the Welsh Harp meandering at the foot of the property. The printed particulars stated that 82 lots would be submitted, but at the commencement of the sale the auctioneer stated that 39 of the lots had been disposed of by private contract. The remaining 43 lots were offered, several of them being sold, those fronting the Edgware-road, having a frontage of 18 ft. and 80 ft. in depth realising 100*l.* each. Other lots, with similar frontages and depths, to new roads on the estate, were sold for sums varying from 60*l.* to 62*l.* each. A building estate at Hendon, immediately adjoining the above, has also just been disposed of by Mr. Collier. The estate, which comprises 27 acres, was offered for sale at the Auction Mart, about a fortnight ago, in three lots. One lot of 12 acres was sold for 8,500*l.*, being at the rate of a little more than 700*l.* per acre. The other two lots, consisting of 15 acres, were withdrawn, but last week they were disposed of by private treaty for 10,000*l.*, being at the rate of about 750*l.* per acre.

THE BUILDING CLAUSES OF THE POLICE BILL, SCOTLAND.

A DEPUTATION from the Glasgow Institute of Architects waited upon the Lord-Advocate at the House of Commons to urge the deletion from the Burgh Police and Health (Scotland) Bill of all clauses relating to building, and to advocate the incorporation of those clauses in a separate Act. The gentlemen present were:—Mr. James Thompson, president of the Institute, Mr. John Honeyman, and Mr. Campbell-Douglas.

Mr. Thomson stated that the members of this deputation had advocated for many years the adoption of regulations for building separated from the Police Bill. They were convinced that it was hopeless to expect many different corporations to act in concert in a matter of this kind, and they did not think that such a measure as they desired should be introduced by a private member, but by the Government. The principle they desired to state was that laws relating to the construction of buildings could be best framed and carried out by architects, who devoted their whole time and attention to the subject. The laws that were necessary for the proper use of buildings they proposed to leave to the administration of the Police Commissioners. In London there existed such an Act as they desired to see passed,—the Metropolitan Buildings Act,—which became law in 1855. This Act had worked satisfactorily since that year, and they desired to see a similar measure passed for Scotland, and particularly for Glasgow. They did not appear as owners of house property, but as advisers of the owners of property accustomed to appreciate the effect of those laws which related to heritable property and proprietary rights. They agreed with the Glasgow Landlords' Association in thinking that many of the clauses in the new Police Bill were objectionable, but they highly approved of it becoming law if duly amended.

Mr. Honeyman corroborated what had been stated by Mr. Thomson,—that their earnest desire was that the Legislature should adopt precisely the same course with regard to Glasgow and other towns in Scotland as had been followed with respect to London in 1855. They had the Metropolitan Local Management Act of 1855, and the Metropolitan Building Act of 1855, and now they desired to have a Burgh Police and Health (Scotland) Act and a Burgh Building (Scotland) Act. They submitted that the experience of the past twenty-eight years had amply proved the wisdom of separating the building clauses from the General Police Act, especially by the working of the Building Act, under which an enormous amount of work had been done. The London Act secured more substantial benefit to the public, and more even-handed justice to the building owners than any other building law that had been devised. The proposal to apply it to Scotland would beget much opposition, but he did not think that should be considered an insuperable objection in view of the benefit that would be conferred.

Mr. Campbell-Douglass also spoke.

The Lord-Advocate, addressing the deputation generally, said the ideas which they had laid before him were somewhat new. The measure which they proposed would be a wide-reaching one, affecting a great many people, and it would be necessary to have the sanction of prevalent public opinion before proceeding with it. He did not think it would be advisable that any man or any Government should introduce such a bill into Parliament without having well ascertained the general feeling of the public upon the subject.

THE DWELLINGS OF THE LABOURING CLASSES.

ON the 27th ult. the annual meeting of the Society for Improving the Condition of the Labouring Classes was held in Willis's Rooms, St. James's, the Rev. Canon Nisbet, in the unavoidable absence of Lord Shaftesbury, the president, occupying the chair.

The secretary submitted the annual report, which stated that the model house in Streatham-street, Bloomsbury, comprising 54 dwellings for families, was fully occupied. The Portpool-lane houses, which accommodated 20 families and 128 single women, had been satisfactorily occupied. The public washhouses in connexion was largely resorted to and much appreciated by the poor in the neighbourhood, the number of washings during the year being no less than 26,090. The Dyott-street, Bloomsbury, lodging-house for 104 single men returned an average of 87, but this was owing to depression in trade, and so many men being out of employment. Macklin-street lodging-house for 72 single men had averaged 70, and the renovated dwellings in Wild-court were fully tenanted. There were 78 families in Clarke's-buildings, and the Tyndall-buildings, Gray's Inn-road, for 87 families and lodging-house had had an average tenancy. The building, however, was about to be removed to permit of improvements. The balance-sheet showed that the receipts for the past year from all sources were 5,814*l.* 6s. 6d., and with the balance in hand at the beginning of 1882 the total sum was 6,187*l.* 2s. 7d. The total expenditure was 5,944*l.* 9s. 5d., leaving a balance of 242*l.* 13s. 2d. The property belonging to the society was estimated at 35,371*l.* 11s. 11d., and the general liabilities amounted to 2,010*l.* 6s. 6d., leaving assets to the amount of 15,265*l.* 4s. 3d.

Captain Douglas Galton, in moving the adoption of the report, said that this society had initiated one of the grandest movements that ever was begun in this country, which was to improve the dwellings of the poor. It meant the diminishing of the death-rate and sickness, while it provided them with homes which cultivated in the minds of the occupants morality and patriotism. He had often directed attention to the death-rate in the metropolis, and it was said to be a low death-rate when it was 21 per 1,000; but when they went into the back streets and narrow courts it was found that the death-rate rose to 40·50, and in some cases 60 per 1,000, and that was due to the wretched dwellings which the very poor were compelled to occupy. There were no means by which the dirt could be removed from these houses, and where pure air could not circulate through them the result was sickness and death. It was now nearly forty years ago when that society stepped forward to provide better dwellings for the labouring classes, and the result was that many other societies had since sprung up having the same objects in view.

The Marquis of Hertford moved the re-election of the committee, and said that he regretted the absence of his noble friend, who had always been present at their annual meetings, and given them his valuable advice. It was Lord Ashley who drew the attention of the late Prince Albert to the deplorable state of the dwellings of the poor in Windsor, and he at once took up the matter, and had erected some forty or fifty houses. The result was that builders followed his good example, and in a short time the poor had excellent houses. There were model dwellings all over the country in imitation of those which they had erected.

Legislation against Panics.—Mr. Kennard, in the House of Commons, asked the Home Secretary whether he was prepared to extend the scope of the Buildings Act, now applicable only to the metropolis, to the provinces, and add the amendments requisite for diminishing the dangers of panic in crowded assemblies.—Sir W. Harcourt replied that he had a draft Bill prepared with the object mentioned last year, and if he saw any chance of its passing into law he should be happy to introduce it this year.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

3,109. E. G. Banner, London. Construction of pavements and roadways to accommodate telegraph wires, &c. June 22, 1883.

3,146. M. Syer, J. Gilmore, and W. R. Clark, London. Flushing apparatus and waste-not valves. June 25, 1883.

3,151. W. Corliss, Providence, U.S.A. Fire-proof buildings, &c. June 26, 1883.

3,154. J. McI. Shaw, Glasgow. Cooking-ranges. June 26, 1883.

3,157. T. H. Rees, London. Manufacture of tiles, &c., for the covering of walls, floors, &c. June 26, 1883.

3,169. W. R. Lake, London. Manufacture of matting, &c., for covering floors. (Com. by J. Bray, Washington, U.S.A.) June 26, 1883.

3,181. C. W. H. Brock, Bishop's Waltham. Means for holding and adjusting roller-blind cords. June 26, 1883.

3,191. P. Efferty, London. Brick-making machine. (Comp. spec.) June 27, 1883.

3,200. H. Burgin, Walthamstow. Appliances for inducing air from chimneys, &c. June 27, 1883.

3,204. J. Farrimond and J. Whittaker, Southport. Ventilating water-closets, &c. June 28, 1883.

3,212. W. E. Diehl, Philadelphia, U.S.A. Door-retention stop. June 28, 1883.

NOTICE TO PROCEED

has been given by the following applicants on the dates named:—

June 26, 1883.

923. T. J. Mullings, London. Sash-fasteners. Feb. 20, 1883.

933. W. Lee, and D. F. Lee, Maidstone. Arrangement of blocks for walls and building structures. Feb. 20, 1883.

971. P. H. Collins, Winchester. Window-fasteners. Feb. 22, 1883.

988. H. Longden and C. F. Longden, Sheffield. Apparatus for heating by hot water. Feb. 23, 1883.

1,028. W. Shepherd, London. Construction of furniture and other repositories. Feb. 26, 1883.

June 29, 1883.

1,191. W. G. Hudson, Manchester. Construction of chimney flues, &c. March 6, 1883.

2,576. J. Garlick, Birmingham. Construction of floorings, platforms, &c. May 23, 1883.

2,698. J. Waple, London. Chimney tops and ventilators. May 30, 1883.

ABRIDGMENTS OF SPECIFICATIONS,

Published during the Week ending June 30, 1883.

5,058. G. G. Page, London, and R. Nunn, Salisbury. Bathing and promenade piers. Oct. 24, 1882. Price 6d.

The piers are so built as to enclose a space in which is suspended a cage or frame, with a perforated bottom, which can be raised or lowered by hydraulic or other power out of or into the water.

5,107. W. T. Goolden and C. F. Casella, London. Instruments for indicating excessive variations of temperature in buildings, &c. Oct. 27, 1882. Price 6d.

A wire is sealed within the tube that contains the mercury, to which is connected an adjustable wire, and when the mercury has reached a certain height, as determined by the adjustable wire, it makes an electrical current, and rings an alarm.

5,115. T. H. Collins, Winchester. Manhole doors for passages leading down to sewers, &c. Oct. 27, 1882. Price 6d.

A tray-shaped cover rests on the manhole frame, the bottom of which is raised dome-shape in the centre, and an open basket suspended therefrom contains charcoal, through which the sewer-gas as it issues has to pass, whereby the same is disinfected. The surface-water passes off by the sides of the dome-shaped bottom into the sewer, through pipes terminating at their lower ends in a bend, by which they are sealed.

5,125. A, J. Boult, London. Door-checks or governors. (Com. by the Elliott Pneumatic Door-check Company, Boston, U.S.A.) Oct. 27, 1882. Price 6d.

A cylinder which is secured preferably to the lintel of the door contains two pistons, one being fixed on the rod; the other, which is on the power side of the former, travelling loosely on the rod. In the loose piston are valves or passages for the air, so that there is a double cushioning force exerted when the fixed piston is being driven back. A coiled spring is placed in the other end of the cylinder, which acts on the fixed piston to force it back, and the rod is connected by levers with the door in such a manner that when the door is opened an equilibrium is created, which keeps the door in position, but a slight exertion of force only is required to close the door, when the double cushioning prevents any slamming.

5,186. J. Weller, London. Stove-pipe attachments. (Com. by C. Lovell, Massachusetts, U.S.A.) Oct. 31, 1882. Price 2d.

A quadrantal elbow is pivoted on the lower end of the main pipe, which is of a square section, and flexible aprons are fitted to the ends of the elbow, which extend inside the pipe. The stove educts are attached to the bottom part of the elbow. (*Pro. Pro.*)

5,250. W. D. Scott-Moncrieff and W. Dodds, London. Valve apparatus for supplying baths, &c., with water. Nov. 3, 1882. Price 6d.

Hot or cold water is admitted through separate valves into the same pipe, whence it is discharged mixed in such proportions as may be desired into the bath, &c., through independent valves.

5,259. A. E. Crisp, London. Window-fasteners. Nov. 4, 1882. Price 6d.

A spring clip is fastened on the lower sash, which catches the knob of the lever when it is brought over from the upper sash to receive the window, and prevents the lever being turned back from the outside.

5,266. R. Chapman, Patricroft, & J. Hibbert, Manchester. Apparatus for closing doors and windows. Nov. 4, 1882. Price 6d.

The bottom of the door is mounted in a shoe, with a vertical spindle, on which is a double cam, against which rest projections on loose tappets on the spindle above and below the cam. In the box in the floor which encloses the apparatus are mounted two levers and chains are led from the tappets to the long ends of the levers, the other ends of which are held by springs. When the door is opened the cam moves the tappet, which actuates the lever, drawing out the spring, which last, when the door is released, returns it to its former position.

5,283. W. Kennedy, Glasgow. Translucent plates or sheets, for use as substitutes for glass in roof-lights, &c. Nov. 6, 1882. Price 4d.

These are made of perforated metal sheets or plates, the perforations in which are closed with translucent paper, woven fabric, or gelatine, &c.

5,310. J. G. White, Bo'ness. Cooking ranges. Nov. 7, 1882. Price 6d.

These have revolving fire-baskets, combined with suitable dampers, &c.

1,204. W. R. Lake, London. Tongs for domestic purposes. (Com. by A. S. Adams, Boston, U.S.A.) March 6, 1883. Price 6d.

In a hollow handle is a rod, controlled by a spring, and two movable jaws are pivoted to the handle and connected with the rod in such a manner that when the rod is depressed the jaws are extended, and *vice versâ*.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

ARCHITECTURE AND LITERATURE.

SIR,—The articles which have appeared in the *Builder* of late have deeply interested me. They exhibit an uncommon appreciation and deep research into the subject which has called forth much admiration. I would offer a few remarks which shall be, at least, brief. While perusing the writing of some of the Elizabethan dramatists I was struck by a most beautiful scene in a play written by John Webster, about the year 1623. The play in which it appears is called "The Tragedy of the Duchess of Malfi." It exhibits a *feeling of interest* in the ruins of past ages seldom to be met with at that period:—

> "Yond's the cardinal's window. This fortification
> Grew from the ruins of an ancient abbey;
> And to yond side o' the river lies a wall,
> Piece of a cloister, which, in my opinion,
> Gives the best echo that you ever heard,
> So hollow and so dismal.
> I do love these ancient ruins.
> We never tread upon them but we set
> Our foot upon some reverend history."

Savage possessed, or professed, a greater love for architecture than, perhaps, any poet. I will but quote one passage; it occurs in his poem "The Slanderer." After complimenting "Gibbs" in a lavish manner, he proceeds:—

> "The sun shines broken, through yon arch, that rears
> This once round fabric, half deprived by years,
> Which rose a stately colonnade, and crown'd
> Encircling pillars, now unfaithful found;
> In fragments these the fall of those forbode
> Which, nodding, just upheave their crumbling load.
> * * * *
> An aqueduct across yon vale is laid,
> Its channel through a ruin'd arch betray'd,
> Whirl'd down a steep," &c.

Ben Jonson, at least, looked upon architects as "designing fellows," and in the play "Every Man in his Humour" we come across the following remarkable colloquy:—

Wellborn. "Why, Brainworm, who would have thought thou hadst been such an artificer?"

Knowell. "An artificer! An architect. Except a man had studdied begging all his lifetime and been a weaver of language from his infancy for the clothing of it, I never saw his rival."

He also shows his knowledge of architects' instruments in the play of the "Silent Woman," where he puts these words into the mouth of one of his characters:—"For the mathematics, his square, his compasses, his brass pen, and black-lead to draw maps of every place and person where he comes."

But I fear I digress. I remember to have perused an essay which was read before the Archæological Association, the exact title of which I forget, but the writer treated on prose writers as you have on poets; also an article on "Shakspeare as a Builder." If you would kindly refer me to the numbers containing these papers I should feel indebted to you.

W. NORMAN GETHING.

SCHOOL BOARD CONTRACTS.

SIR,—The system of contracts for the School Board of London is not honest to the overburdened ratepayers: it ought to be, and it shall be, opened to the whole of the builders of London. In my opinion the schools that cost the most are built the worst. Mr. Lobb said 8*l.* per head ought to be the limit. I say the schools can be built for 6*l.* per head for children, not including the land, while some have cost 14*l.* and as high as 16*l.* 10*s.* I will ask any practical man to look for himself at the school at Whitefield-street, Tottenham-court-road, costing over 16*l.*; then go and look at the school at North-end-road, Fulham, 8*l.*, and he will say for himself the 8*l.* school is the best. Then let him go to Tottenham and see one of the best-built schools near London, with a hall capable of holding 1,000 people, closely packed; deduct for this hall 2*l.* per head. Here is the best school in London for 6*l.* per head. I always understood the custom was, when certain articles were mentioned by the architect in the specification, for the builder to pay for them, and get his discount; but see what is the rule at this Board. There is provision for a lump sum; this sum the builder puts in his contract; the architect deducts it from the builder and pays the sub-contractor by cheque direct from the Board, thus showing the twenty-one builders on the list were not respectable. I am afraid, sir, the quantities will want looking into. We want a few good practical men on the Board. In my opinion it would be cheaper to get ten good practical workmen and pay them 100*l.* per annum; by this means the Board would save 100,000*l.* per annum.

ONE OF THE BOARD.

BUILDERS AND SUPPLIES.

SIR,—I have been lately brought into contact with builders, and I find that many of them, especially those who cover estates with houses, are merely tools in the hands of the ground landlord and the lawyers. Money is advanced at first in sufficient sums to enable the builder to obtain a name for prompt payment, and thus to get credit on monthly account; but just before completion of the estate he tells you he is going to have a draw; but there is some slight legal difficulty, and you go on supplying materials to the end of the month, when you are rewarded by a notice of the bankruptcy of your customer. In one case that came recently under my notice, when the builder went to receive 1,000*l.* to enable him to meet his engagement, the lawyers presented him with a bill of costs receipted for 960*l.* and a cheque for 40*l.* It is needless to state that the creditors did not get 20*s.* in the pound. Could not a society be formed of manufacturers of, and dealers in, building materials, called the Builders' Trade Protection Society, and a manager appointed who would, at the request of any member, examine into the relations between the money-lender and the builder, and where necessary take the estate in hand, and pay off the mortgage? I am sure thousands of pounds annually would be saved to the trade, which now go into the hands of men who advance money on mortgage, not to obtain the interest, but to obtain the property at about two thirds or one half its value. I inclose my card, but subscribe myself,

AN EXECUTOR.

"THE COST OF GETTING YOUR OWN."

YOUR correspondent is wise in calling attention to the above. I am, however, afraid that "the cost of getting your own" will never be materially and substantially altered until we of the mercantile community look out for ourselves. There are too many lawyers in Parliament, and they are looking after *their own* and the *own* of others too. Let us have some commercial men there in their places,—matters would soon be altered then.

M.

LAND DRAINS IN GROUND SOLD IN BUILDING PLOTS.

SIR,—There are old land drain-pipes which, now that I have lowered my ground, discharge their water into my premises. Also, mine being the lowest piece of ground, the water from the hard gravel paths, &c., runs into and floods my yard. What can I legally do, or require the adjoining owner to do, to prevent such

IMPOSITION?

VILLAGE MUSEUMS.

SIR,—Every village ought to have its museum. A 200*l.* room, 40 ft. by 25 ft., will do where no more can be afforded. It should contain a plan of the parish and views of the principal buildings and mansions. Specimens of minerals from all parts of the parish and from different stated depths, with complete geological sections, north to south and east to west, cases of insects, and stuffed birds and animals peculiar to the district. Also dried or living plants growing in the neighbourhood with the names appended. Such an institution would be of great value to collectors of topographic notes, and would afford employment for the many spare hours of the well-educated classes of the village. Of course, any spare room could be allotted to objects of universal interest for the enlightenment of the inhabitants. If any village near this town of Colchester will be first to carry out this idea, I will volunteer to make a coloured view of their parish church, or any other interesting local building, as a contribution.

WALTER SCARGILL.

THE EAST-END BRIDGES QUESTION.

THE residents at the East End continue to agitate the subject of additional bridges across the Thames below London Bridge. Last week a meeting was held in the Vestry Hall, Cable-street, St. George's-in-the-East, at which the rector of the parish, who presided, said it was fair ground for complaint when half the population of London had twelve bridges, whilst the other half had no bridge accommodation worth mentioning. A resolution was passed at the meeting to the effect that at least three bridge communications across the Thames, east of London Bridge, were justified by the wants of the commercial and industrial population at the east end of the metropolis. It was endeavoured to be shown that this additional bridge accommodation could be given without interfering with the river traffic. The feeling of the meeting appeared to be in favour of low-level bridges, on the ground that high-level bridges and tunnels under the river alike presented difficulties. Mr. Ritchie, one of the members for the Tower Hamlets, in addressing the meeting, said he held it to be a public scandal that the great industrial population in East London, and on the south side of the Thames, containing such a vast number of people, should, for such a length of time, have remained without the advantages of communication across the river. He strongly supported three additional means of communication, observing, however, that these three communications would, of necessity, involve a vast expenditure, and it was a question whether they should not endeavour to press upon the powers that be that if one or another of the schemes should have priority, it should be in a central position. If they could obtain the coal and wine dues towards the expense of constructing these bridges, well and good, but they must have the communications, and whether the money was to be raised by a tax upon coal and wine, or by a rate over the whole of the metropolis. If the governing body of London had made up its mind that these communications were necessary it would be a disguise if they were not completed, whatever source the money had to come from.

The New South Wales College.—The Cardiff Town Council, at a meeting on Monday, considered a resolution of the South Wales College Committee asking the Corporation to acquire the old infirmary, as the committee considered it a very suitable building in which to commence operations. The Infirmary Committee were also willing to dispose of the building and site for 10,000*l.* The Council considered the building most suitable, and they resolved to ask the Free Library Committee to arrange for the classes in connexion with the college to commence there.

Civil and Mechanical Engineers' Society.—A large number of members of this Society visited the City Extension of the Metropolitan and District Railway, on the 25th of June, and were conducted over the works by Mr. E. P. Seaton, the Resident Engineer. Among those present were the President, Mr. R. H. Twigg, M.I.C.E., and Messrs. Street, Walmisley, Munday, G. R. W. Wheeler, Willcocks, and Cuxon (hon. secretary).

LIABILITY OF TENANTS FOR ROAD REPAIRS.

A NOVEL DEFENCE.

A CASE of importance to occupiers of houses came before the Lord Mayor's Court last week, in which the Rev. W. D. Morrice, owner of the Aberdeen Park Estate, was the plaintiff, and Mr. Alfred Donnison was the defendant. The defendant is one of the plaintiff's tenants on the estate, and the action was brought to recover 7*l.*, the amount said to be due from him for his apportionment of the repair of the roads in the park, which is a private estate. On behalf of the plaintiff it was stated that by deed he let the house to the defendant on lease for eighty-six years from September, 1868, he covenanting to pay, in conjunction with the other tenants, his proportion of expenses of repairing the pavement. These were apportioned upon the assessed value of the houses, and the defendant had twice paid for repairs on this principle. When the last call was made upon him for the amount now sued for, he objected to the system on which it was levied, contending that it should be upon the frontage of the house and not upon the value. Upon this principle his liability amounted to 4*l.*, and this sum he paid into court. The question before the jury, therefore, was upon which of the two principles the charge should be made, and expert evidence was called on each side in favour of the two contentions.

The jury returned a verdict for the plaintiff, in which the judge said he agreed, observing that it seemed to him that it would be monstrous to charge by frontage where one person who occupied a house of no greater value than his neighbours, but who chanced to reside in a corner house, would have to pay not only for the frontage of his house, but for the side of the house and garden also.

THE GOVERNMENT AND THE BUILDING ACTS.

AT Worship-street Her Majesty's Commissioners of Works were summoned by the Metropolitan Board of Works to show cause why they, being the owners of a structure in Victoria Park, should not be ordered to pay 1*l.* 2s. 3d., the fees incurred by the surveying of the building by Mr. Alexander Payne, district surveyor, The Hon. A. Gathorne-Hardy appeared to oppose the claim for the Commissioners; Mr. Norman Bevan appeared for the Metropolitan Board of Works.

The summons was taken under the Metropolitan Building Act, 1885, part ii., which gives power to district surveyors to survey any structure, and if found dangerous, to give notice, and send in an account of fees. The Board of Works, Mr. Bevan explained, maintained that they had a right to intertere with any building within their area.

The Hon. A. Gathorne-Hardy said this was a very important question, and had not been raised since 1866. The contention he should argue for the Commissioners of Works was that the buildings employed for Her Majesty's use and service were exempted in the second part of the Act, as in the first part. He agreed that there was no special exemption in part ii., but the words of the first part, section 2, viz.,—"The following buildings and works shall be exempt from the operations of the first part of this Act:—Bridges, &c., Her Majesty's royal palaces, and any buildings in the possession of Her Majesty, her heirs and successors, or employed for Her Majesty's use or service,"—implied a similar exemption throughout the whole Act. He maintained that, notwithstanding these exemptions were not specified in part ii., it did not do away with the general principle of law, that the Crown was not bound by any Act of Parliament unless it was specially provided accordingly.

Mr. Bevan challenged Mr. Gathorne-Hardy's assertion that the Crown property was exempt. It would not be competent for the public authorities to pass a dilapidated building which might be dangerous to passers-by simply because it was Crown property.

Evidence having been given by the District Surveyor as to surveying and condemning the building (a lodge in Victoria Park), the magistrate adjourned his decision for a fortnight.

Mr. Hannay, in giving judgment, said it was generally understood that the Royal palaces, great public buildings such as the Bank of England, and other places, were exempt from the minute provisions made for the care of the ordinary class of house property. Other provisions of the statute, again, were quite impossible of application to Crown property. The 73rd, 74th, and 80th sections of the Act went beyond prerogatives, and he considered that the argument for the Commissioners that the exemption of part i. applied by implication to the whole of the Act was overpowering. He had come to the clear conclusion that Crown property came within the operation of part ii. of the Act, and should, therefore, dismiss the summons, but would grant a case if desired.

Mr. Bevan, for the Board of Works, asked if he might take the decision as meaning that the Board had no jurisdiction over Crown buildings?

Mr. Hannay said that in some cases the Act gave them jurisdiction, but the Commissioners of Works had surveyors of their own, who were responsible for the safety of the buildings belonging to the Crown.

Miscellanea.

The Calamity at Sunderland: Verdict of the Jury.—The coroner's inquest was resumed on Monday, and concluded on Wednesday, when the jury returned the following verdict:—

"We find that Frederick Mills and others met their deaths by suffocation on the stairs leading from the gallery in the Victoria Hall, on the 16th of June, 1883, through the partial closing of a door on the landing, fixed in its position by a bolt in the floor, but by whom there is not sufficient evidence to show; that the managers of the entertainment be censured for not having provided sufficient caretakers and assistants to preserve order in the Hall on that afternoon, and we believe that a partnership existed between Mr. Coates and Mr. Fay. We consider the modes of entrance and exit in the Hall are sufficient, except the door at which the fatality occurred, and we would recommend its removal at once. We attach no blame to the caretaker, but suggest that in future the proprietor of the Hall should instruct him to show to all the persons who engage the Hall all its means of ingress and egress."

The evidence seems quite clear that the architect of the building, Mr. Hoskins, had nothing whatever to do with placing the door on the "fatal landing," and it seems somewhat more than careless that the contrary assertion should still be occasionally made.

Salisbury Catehedral Organ.—The work of encasing this organ has been finished. The case is made of wainscot oak. The fronts, or those parts towards the choir, are divided in height into two divisions, the width being also divided into three principal panels or divisions, which are subdivided each into three elaborate traceried panels, the spandrels of which are filled with richly carved foliage of an Early English character. Each front is surmounted by a coved head, having an embattled and carved cornice. The panelling of the casing towards the aisles is similar in treatment to that already described, but the upper panels only are traceried. The return ends of the casing consist of merely plain panelling. There is much beautifully-designed detail in the work, which has been as skilfully executed, the carving being chaste and elaborate. The work has been executed from the designs of the late Mr. Street, by Mr. A. Robinson, of the Bloomsbury Art Carving Works, London.

Bristol Master Builders' Association.—On Tuesday, the 10th inst., the annual meeting of Master Builders' Association of Bristol will take place, the programme arranged being of a most attractive character. The party purposes leaving Bristol by train in the morning for Chepstow, and upon arrival at the latter place, the visitors will proceed in breaks to Raglan Castle, a delightful drive of fourteen miles. Luncheon will be partaken of in the castle grounds, the party returning to Chepstow in the afternoon for dinner.

Society of Arts Conversazione.—It has been found necessary to alter the date of the *conversazione* from the 11th to the 25th July, on account of the entertainment proposed to be given by the Savage Club. It will be held, as previously announced, at the Fisheries Exhibition, South Kensington, and their Royal Highnesses the Prince and Princess of Wales will be present. The members' invitation cards will be sent out shortly.

A New Pier for Swansea.—The new east pier, which stretches out into the sea for a distance of 1,200 ft. from the entrance of the new Prince of Wales Dock, has now been completed by Mr. Walker, of Cannon-street, London, the contractor. It is partly of concrete and partly of creosoted wood, and stone. There is on the top a wide promenade, and a handsome railing.

Public Buildings and Dwellings in the United States.—It is stated that the Federal Government has paid for public buildings 83,404,000 dollars, those in Washington and the mints not included. The first appropriation was 20,000 dollars for a Custom-house in New Orleans in 1807. The buildings which cost upwards of 1,000,000 dollars are the following:—Custom-houses and Post-offices.—Chicago, 5,816,000 dollars; St. Louis, 5,562,000 dollars; and Cincinnati, 4,650,000 dollars. Custom-houses only.—Boston, 1,192,000 dollars; New York (now used as Sub-Treasury), 1,131,000 dollars; New Orleans, 4,156,000 dollars; and Charleston, 2,802,000 dollars. The Court-house and Post-office at New York cost 9,341,000 dollars; and that of Philadelphia 5,134,000 dollars; the Post-office and Sub-Treasury at Boston, 5,271,000 dollars. In the year 1882 more than 300 houses were erected in New Orleans, at a cost of 2,600,000 dollars; and a large number of superior houses are now going up in various parts of the city. In New York City 2,561 houses were built in brick and stone, at an outlay of 49,041,167 dollars, being upwards of double the average for several years past, which was only 20,000,000 dollars annually. Of the above dwellings, 585 were single houses, 1,257 were in flats, and there were eight hotels. The average cost of the buildings was no less than 19,200 dollars, or nearly 4,000*l.*

The Value of Property in Somersetshire. Mr. J. C. Wallop sold by public auction some very valuable building and pasture-land situated in the neighbourhood of Tatten, Somerset, last week, the amount realised by the sale being 2,088*l.* The chief lots were Bishop's Well Farm, Tattan, about nine acres and a half in extent, sold for 860*l.*; 3a. 1r. 11p. of pasture and orchard land at Tattan for 450*l.*; and 4a. 2r. 4p. of land known as Stowell's Paddock and Quarry Ground, Tattan, for 425*l.* Mr. George Nichols, auctioneer, of Bristol, disposed of by sale on Wednesday 2,940*l.* worth of valuable accommodation land, eligible for building purposes. The lots sold included a farm-house with 13a. 2r. 3p. of land situate at Cockshot Hill, near Bristol, knocked down to Mr. Robert Jones for 1,400*l.* Mr. E. Jones was the purchaser for 420*l.* of lot 10, consisting of 5a. 3r. 35p. of pasture land in the parish of Mangotsfield. A close of building land of nearly 2 acres in extent was sold for 230*l.* At Williton Messrs. Hawkes & Risden, auctioneers, sold four cottages and three building sites, the former making 300*l.*, and the latter, of 29p. in extent, was disposed of for 90*l.* Last week Mr. George Nichols, Bristol, put up to the hammer a freehold estate, called Church Farm, containing together 112 acres, 59 being pasture, and 53 arable, situated in the parishes of Tellisford and Woolverton. Mr. Gouldsmith was the purchaser of the property for 4,900*l.*

Opening of New Board Schools at Heworth, near Gateshead-on-Tyne.—The sixth block of school buildings erected by the Heworth School Board at Windy Nook has just been opened for the reception of scholars. The schools previously erected by the Board are situate at High Felling, Bill Quay, Felling, Felling Shore, and Wardley, and these, with the new buildings, will, it is expected, meet for the present the educational wants of the district. The new buildings are placed upon an open site to the east of the village. They are built entirely of stone. A lofty bell-turret surmounts the main roof, and the buildings form a pleasing and substantial group. Accommodation is provided for 450 children. Private rooms are attached to each department for the use of the teachers, and cap-rooms and lavatories for the children. Provision is also made for a caretaker to reside near the premises in a detached cottage. The buildings are heated throughout by means of hot-water in pipes and coils, and special attention has been given to the ventilation of the schoolrooms. The works have been carried out in a satisfactory manner by Messrs. Greason & Stockdale, of Gateshead, their subcontractors being Mr. Hutchinson, mason; Mr. Rule, plasterer; Mr. Blenkley, plumber; Mr. Burn, slater; Mr. Almond, painter and glazier; and Messrs. Walker & Emley, hot-water engineers. The Wardley schools were designed by Mr. Ord, of Durham; and those at High Felling, Bill Quay, Felling, Fellling Shore, and the Windy Nook schools, just completed, by Messrs. Oliver & Leeson, of Newcastle-on-Tyne.

Exhibition at Cork.—The Industrial and Fine Art Exhibition at Cork was opened on Tuesday last. We shall say something more about the building and its contents next week.

Tricycle Union.—We have before us a prospectus of the Tricycle Union, a special central organisation originated by the chief metropolitan tricycle clubs for the protection and encouragement of tricycling throughout the kingdom. The Tricycle Union is open to club-men, unattached riders, and all persons interested in tricycling. As the subscription for 1883 is fixed at the nominal sum of 1s., the Tricycle Union will doubtless obtain the practical support of all lovers of this new means of healthy amusement and locomotion. Forms of application for membership can be obtained by sending a post-card to the hon. treasurer, Mr. F. S. Cobb, 8, Church-road, Willesden.

Corporation Finances.—From the report of the accounts of the Chamberlain and Bridgemasters presented at the Common Hall on Monday, we gather that in respect of the City's cash the receipts for the past year (including the sum of 19,248*l.* 5s. 3d. received from the sale of premises, 1,005*l.* 10s. from the sale of securities, 354,450*l.* 10s. from loans raised, and 80,000*l.* from the reserve fund) were 769,273*l.* 5s. 3d.

TENDERS.

For repairs and painting to 12a, Myddleton-square, Clerkenwell. Mr. W. P. Griffith, architect:—

Lidstone	£109	0	0
Steel Bros.	98	0	0
Minton	95	0	0
Fricker	86	10	0
Egan (accepted)	84	17	0

For the erection of new premises at the corner of St. Mary-street, and High-street, Wallingford, for Mr. Harry Harris. Messrs. Brown & Albury, architects, Reading:—

Dodd	£1,546	0	0
Smallbone	1,508	0	0
Williams	1,459	0	0
Brashier & Son	1,444	0	0
Wernham	1,392	0	0
Weaver	1,388	0	0
Bottrill	1,384	0	0
Kingerlee (accepted)	1,374	0	0

For the erection of new premises, Broad-street, Reading, for Mr. R. Brigham. Messrs. Brown & Albury, architects, Reading:—

Woodrooffe & Son	£2,360	0	0
Strong Bros.	2,339	0	0
Wernham	2,266	0	0
Weaver	2,229	0	0
Bourton	2,170	0	0
Kingerlee	2,140	0	0
Higgs	2,130	0	0
Bottrill	2,096	0	0
Searle	2,037	0	0
Simonds (accepted)	1,987	0	0

For the erection of a pair of villas, Lorne-street, Reading, for Mr. John Grimes. Messrs. Brown & Albury, architects, Reading:—

Bottrill	£1,050	0	0
Kingerlee	949	0	0
Taylor (accepted)	892	0	0

For villa residence, Lower Cross-road, Hemel Hempstead, for Mr. H. Mutton, of Queen-street, Hemel Hempstead. Mr. T. Foster Woodman, architect, St. Albans, and Hemel Hempstead:—

L. Sear	£720	0	0
W. Sear	660	0	0
C. Monk	650	0	0
E. Horn (accepted)	600	0	0

For reinstatement after fire, and additions to, straw-hat factory, Redbourne, for Mr. A. Allen, of Redbourne. Mr. T. Foster Woodman, architect, St. Albans, and Hemel Hempstead:—

J. & W. Savage	£271	0	0
E. Horn	235	0	0
G. Philbey	230	0	0
J. Pratt (accepted)	202	0	0

For alterations and decorations at 17, Belsize Park, Hampstead, for Dr. Westland. Messrs. Chadwick & Sons, architects:—

G. Snow, Belsize Park-terrace (accepted).

For rebuilding "Hatchett's" Hotel and White Horse Cellars, Piccadilly. Contract No. 1. Messrs. W. S. Weatherley and F. E. Jones, architects. Quantities supplied:—

	Bath.			Ancaster.		
Mowlem	£24,400	0	0	£25,000	0	0
Manley	23,950	0	0	24,250	0	0
Ansell	23,570	0	0	23,880	0	0
Macey	23,335	0	0	23,645	0	0
Boyce	23,266	0	0	23,590	0	0
Brass	23,239	0	0	23,567	0	0
McLachlan	23,032	0	0	23,322	0	0
Rider	22,950	0	0	23,270	0	0
Colls	22,785	0	0	23,085	0	0
Shaw	22,626	0	0	23,126	0	0
Chappell	22,570	0	0	22,868	0	0
Grover	21,848	0	0	22,268	0	0
Higgs & Hill	21,604	0	0	22,000	0	0

For rebuilding the Coopers' Arms, Tower-street, Lambeth, for Mr. Broughton. Mr. George Treacher, architect, No. 28, Carter-lane.

Langmead & Way	£2,790	0	0
Canning & Mullins	2,627	0	0
Pickersgill Bros.	2,258	0	0
Jackson & Todd	2,242	0	0
J. Beale	2,196	0	0

For the erection of proposed Sunday-school buildings and other works at Portland Chapel, Southampton. Mr. W. H. Mitchell, architect:—

H. J. Sanders, Southampton* £1,874 0 0

* Accepted.

For the erection of proposed infant school for 200 children at St. Mark's, Woolston, for the St. Mary-Extra School Board. Mr. W. H. Mitchell, Southampton, architect:—

Crook	£11,34	0	0
Rowland & Hewitt	1,094	0	0
Sanders	1,045	0	0
Warden	990	0	0
Dyer & Sons	981	0	0
John Holt	979	0	0
J. W. Rowland	929	0	0
Stevens & Sons	925	0	0
Goodeve	795	0	0

For Manchester-street School, for the School Board for London. Mr. E. R. Robson, architect:—

T. Boyce	£4,414	0	0
J. F. Sargeant	4,339	0	0
G. T. Pritchard	3,959	0	0
Wall Bros.	3,890	0	0
W. Shurmur	3,879	0	0
W. Oldrey	3,800	0	0
J. Grover	3,782	0	0
I. R. Hunt	3,583	0	0

For Deptford Lower-road School, for the School Board for London. Mr. E. R. Robson, architect:—

F. Johnson & Co.	£9,466	0	0
W. Shurmur	9,342	0	0
Kirk & Randall	9,106	0	0
W. Oldrey	8,987	0	0
W. Tongue	8,883	0	0
F. J. Jerrard	8,844	0	0
C. Wall	8,773	0	0
Atherton & Latta	8,700	0	0

For alterations and other works, less allowance for old materials, at 35, Bloomsbury-street, for Mr. Peter S. Bruff. Messrs. Hames & Darling, architects:—

Tiles & Son	£1,254	0	0
Bush	1,175	0	0
C. Ansell	1,099	0	0
Fisher	1,097	0	0
Spencer & Co.	1,055	0	0
Love	1,049	5	0

For alterations and additions to Bearwood-road Schools, for the Harborne School Board. Quantities supplied by the architects, Messrs. J. P. Sharp & Co.:—

Thos. Hughes, Hockley-hill	£1,900	0	0
J. Stockton, Oldbury	1,669	0	0
Sapcote & Sons, Birmingham	1,660	0	0
E. Walton, Smethwick	1,599	0	0
J. Wilson & Son, Handsworth	1,594	0	0
Harley & Son, Smethwick	1,590	0	0
Jeffrey & Son, Birmingham	1,470	0	0
G. H. Marshall, Smethwick	1,438	0	0
Whitehouse & Jones, Ladywood	1,429	0	0

For Congregational chapel, Sebert-road, Forest-gate. Mr. Francis J. Sturdy, architect:—

Perry & Co.	£7,290	0	0
Adamson & Son	7,272	0	0
F. Mark	7,160	0	0
Hunt & Co	7,150	0	0
Norton & Co.	7,007	0	0
Bangs & Co.	7,000	0	0
Faulkner	6,997	0	0
J. Morter	6,899	0	0
Holland	6,893	0	0
Rider & Sons	6,850	0	0
Woodward	6,668	0	0
Sabey & Sons	6,472	0	0
Conder, R.	6,400	0	0

For the erection of residential chambers at the corner of Old Brompton-road and Gloucester-road, South Kensington. Mr. W. H. Collbran, architect, 94, Gloucester-road:—

Conder	£14,500	0	0
Huey	14,221	0	0
Boyce	14,200	0	0
Martin, Wells, & Co.	14,200	0	0
Perry & Co.	13,500	0	0
Nightingale	12,009	0	0
H. Smith	11,975	0	0
Toten & Sons	11,975	0	0
Stimpson & Co.	11,470	0	0

For making and sewering Wolseley-road, Crouch Hall Estate, Crouch-end, for the Imperial Property Investment Company (Limited). Mr. G. H. L. Stephenson, surveyor:—

Wilson, Walthamstow (accepted).

For alterations and additions to the Latymer Schools Hammersmith, for the Trustees of the Latymer Charity Mr. G. Saunders, architect:—

Brathwaite	£1,669	0	0
Rye	1,561	0	0
Mansell	1,559	0	0
Chamberlain Bros.	1,519	0	0

For the erection of new School Buildings, North-street, Guildford, for the Building Committee of the Congregational Church. Messrs. Peak, Lunn, & Peak, architects. Quantities supplied by architects:—

				Deduct for old Materials.		
Geo. Huckle, Norbiton	£3,932	10	0	...	—	
H. R. Swain, London	3,633	0	0	...	£20	0 0
Robert Pink, Milford	3,544	0	0	...	47	0 0
G. Strudwick, Guildford	3,490	10	0	...	25	0 0
Goddard & Sons, Farnham	3,495	0	0	...	30	0 0
Martin, Wells, & Co., Aldershot	3,350	0	0	...	50	0 0
James Dunford, Poole	3,370	0	0	...	100	0 0
Mitchell Bros., Stratford	3 267	0	0	...	45	0 0
W. Garland, Aldershott	3,249	0	0	...	70	0 0
Thomas Henry Kingerlee, Banbury*	3,175	0	0	...	100	0 0

* Accepted.

For rebuilding the Princess Alice public-house, Commercial-street, for Messrs. Truman, Hanbury, Buxton, & Co. Mr. Bruce J. Capell, architect:—

J. & H. Cocks	£4,586	0	0
Staines & Co.	4,484	0	0
C. Marr	4,370	0	0
J. Anley	4,300	0	0
W. Shurmur (accepted)	4,167	0	0

For the erection of the National Hospital for the Paralysed and Epileptic, Queen's-square, Bloomsbury. Messrs. Manning & Simpson, architects, 6, Mitre-court Chambers, Temple. Quantities by Mr. D. J. Brown, No. 61, Lincoln's Inn-fields:—

T. L. Green	£42,145 0 0
Wontner, Smith, & Son	40,888 0 0
J. Beale	40,875 0 0
Kirk & Randall	40,742 0 0
Hobson	40,650 0 0
Longmire & Burge	40,495 0 0
Manley	40,464 0 0
W. B. Downs	40,354 0 0
A. Thom	40,200 0 0
Simpson & Son	40,000 0 0
Howard & Dorrell	39,990 0 0
Macey & Son	39,900 0 0
Wall Bros.	39,580 0 0
Brass	39,500 0 0
Peto Bros.	39,439 0 0
Rider & Sons	39,379 0 0
G. H. & A. Bywaters	39,363 0 0
J. W. Beale	39,346 0 0
Mowlem & Co.	39,300 0 0
Higgs & Hill	39,284 0 0
Ashby Bros.	38,654 0 0
J. T. Chappell (accepted)	37,970 0 0
Merritt & Ashby	37,770 0 0

For Saint Anne's School and Chapel. Messrs. G. R. Crickmay & Son, architects. Quantities supplied by Mr. R. Roberts:—

J. T. Chappell	£44,080 0 0
G. Candler	43,535 0 0
G. Grimwood & Sons	42,494 0 0
W. Bangs & Co.	41,141 0 0
H. Lovatt	40,271 0 0
Wall Bros.	39,900 0 0
Perry & Co.	39,250 0 0
Booth Bros.	39,180 0 0
Patman & Fotheringham	38,800 0 0
B. E. Nightingale	38,697 0 0
J. Parnell & Sons	38,396 0 0
Peto Bros.	37,958 0 0
Vernon, Ewens, & Co.	37,888 0 0
Kirk & Randall	36,850 0 0
E. Lawrence	35,768 0 0

For pulling down stables and coach-house, and building dwelling offices and business premises for Mr. W. Grogan, at 125, Piccadilly. Mr. J. T. Wimperis, architect:—

Verrall & Griffiths	£1,678 0 0
Clark & Mannooch	1,597 0 0
Lea	1,560 0 0
Boyce	1,541 0 0
Brass	1,495 0 0
Fish, Prestage, & Co.	1,489 0 0
Bywaters	1,445 0 0
Scrivener & Co.	1,393 0 0

For Wood Green schools for the School Board for Tottenham. Messrs. E. Ellis & Sons, architects. Mr. W. B. Brown, surveyor:—

J. Uff	£11,379 0 0
W. J. Hach	11,377 0 0
J. Fields & Sons	11,283 0 0
W. Avis	11,047 0 0
Mattock Bros.	10,691 0 0
F. Austen	10,371 0 0
Howell & Son	10,300 0 0
H. H. Hobbs	10,220 0 0
J. Tyreman	10,075 0 0
D. & C. A. Brown	9,500 0 0
W. Tongue	9,400 0 0
M. Humphreys & Son	9,250 0 0
C. Wall	8,990 0 0

For proposed new offices at Edmonton, for the Edmonton Local Board. Mr. E. E. Eacchus, C.E., architect. Quantities supplied:—

	Bath Stone.	Portland Stone.
Perry & Co.	£9,300 0 0	£9,790 0 0
Humphreys & Son	8,722 0 0	9,132 0 0
Nightingale	8,040 0 0	8,260 0 0
Linzell	7,838 0 0	8,211 0 0
Wilkinson Bros.	7,793 0 0	8,037 0 0
Higgs & Hill	7,790 0 0	7,990 0 0
Mowlem & Co.	7,673 0 0	7,950 0 0
Tongue	7,235 0 0	7,585 0 0

For rebuilding 23, Milk-street, for Mr. F. N. W. Lloyd. Messrs. Ford & Hesketh, architects:—

R. Conder	£1,040 0 0

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Dove Bros.	£12,285 0 0
L. H. & R. Roberts	11,997 0 0
Outhwaite & Son	11,254 0 0
Hearle & Son	11,067 0 0
Bangs & Co.	10,996 0 0
Perry & Co.	10,920 0 0
Atherton & Latta	10,670 0 0
Ashby Bros.	10,596 0 0

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Ashby Bros.	£5,474 0 0
T. Boyce	5,465 0 0
W. Brass	5,195 0 0
W. & F. Croaker	5,182 0 0
J. Grover	5,094 0 0
L. H. & R. Roberts	4,995 0 0
Harris Wardrop	4,684 0 0
J. Chessum	4,560 0 0

For alterations and additions to No. 185, High-street, Borough. Mr. R. W. H. Mason, architect, Derby:—

W. R. Hough	£520 0 0
W. & F. Croaker, Gt. Dover-st., Boro'.	220 0 0

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